THE RAILWAY GAZETTE
A Journal of Management, Engineering and Operation
INCORPORATING
Railway Engineer · TRANSPORT · The Railway News
The Railway Times · Herapath's Railway Journal · RAILWAY RECORD.
RAILWAYS ILLUSTRATED · ESTABLISHED 1835 · Railway Official Gazette

33, TOTHILL STREET, WESTMINSTER, LONDON, S.W.1.

Telephone : WHitehall 9233 (12 lines). *Telegrams : "Trazette Parl, London"*

BRANCH OFFICES

GLASGOW: 87, Union Street . . . . . *Central 4646*
NEWCASTLE-ON-TYNE: 21, Mosley Street . . *Newcastle-on-Tyne 22239*
MANCHESTER: Century House, St. Peter's Square . . . *Central 3101*
BIRMINGHAM: 90, Hagley Road, Edgbaston . . . *Edgbaston 2466*
LEEDS: 70 Albion Street . . . . . *Leeds 27174*
BRISTOL: 8, Upper Berkeley Place, Clifton . . . . *Bristol 21930*

Annually £4 10s. by post. Single copies, Two shillings.
Registered at the G.P.O. as a newspaper. Entered as second-class matter in U.S.A.

Editor : B. W. C. Cooke, Assoc. Inst. T.

Vol. 101] FRIDAY, JULY 23, 1954 [No. 4

CONTENTS

	PAGE
Editorial Notes	85
Railway Area Managements	87
Press Reactions to the White Paper	88
Diesel Developments in New Zealand	88
May Traffic Trends	89
Letters to the Editor	90
The Scrap Heap	91
Overseas Railway Affairs	92
British Transport Commission (Organisation) Scheme, 1954	94
Mechanised Relaying on Single Lines	97
French-Built Locomotives for Brazil	98
Railway Pipeline from Kilimanjaro, E.A.R.	100
Heavy-Duty Plate Bender	101
Personal	103
News Articles	105
Contracts and Tenders	109
Notes and News	110
Railway Stock Market	112

N.U.R. Support for Lodging Turns

THE decision of the National Union of Railwaymen taken at the annual conference at Gourock last week, to support the principle of lodging turns on the railways, should go far to help the British Transport Commission, which has consistently held the working of such turns to be essential to efficiency in train operation. The N.U.R. decision carries the proviso that the men should be given time to examine proposed lodging turns and suggest alternative methods, but the principle is upheld. In effect, since lodging turns have not, for some time, been imposed without union agreement, there has been time for examination of such proposals in the past, but this has not always been at depot level, which is the stage envisaged by the N.U.R. conference. In 1945, and again in 1947, the N.U.R. declared against the introduction of lodging turns, but in September, 1949, the union, bearing in mind the need for increased operating efficiency on the railways, reversed its former policy, and decided to accept a limited number of lodging turns, subject to control at the headquarters of the union. Mr. J. S. Campbell, General Secretary of the N.U.R., told the conference that it had maintained "a sane line regarding this very important problem," and the conference in fact rejected by substantial majorities 14 appeals against lodging turns, some of which were from the Western Region, where disputes over such turns led to an unofficial stoppage of work in May by members of the Associated Society of Locomotive Engineers & Firemen. A meeting with the Commission on lodging turns, held on July 1, would seem to have lacked reality to some extent, because the N.U.R. position had not then been determined. The two unions concerned have now opposing views, as the attitude of the A.S.L.E.F. is understood to be in no way changed, and that union will continue to negotiate for the abolition of all lodging turns. There is no doubt that the great weight of the N.U.R. decision will be felt at any future meetings between the Commission and the trades unions on this question.

Rating in South Africa

THERE has been a widespread belief in South Africa that the increased charges to be introduced on September 1 are based on recommendations of the committee which was appointed in 1947 to enquire into railway rating policy in the Union. In a letter to the Editor in this issue, Sir Charles Newton, a former Chief General Manager of the London & North Eastern Railway, and Chairman of the committee, dispels this misconception and says that one of the recommendations in the committee's report, which was summarised in our June 16, 1950, issue, was that the free services performed for other Government departments should be charged for, the resulting credits thus enabling the amount sought from commercial users to be reduced. Mr. H. G. Ashworth, one of the other two members, has said in Cape Town that the South African Railways Administration "has departed fundamentally from the committee's recommendations which it professes to adopt" and that these recommendations could have been used equally well as a vehicle for a reduction in rates and fares; the proposed new tariff should have been submitted to an independent tribunal to which interested parties could have made their representations. One of the recommendations of the Newton Committee was for the establishment of a permanent rating commission in South Africa.

Praise for British Railways

AN example of what can be done by individual members of the staff of British Railways to give good service and satisfaction to visitors to this country is provided by the help recently given to a member of the travelling public in making a complex journey. The letter from an American judge which is reproduced on another page describes quiet, unassuming service, given not infrequently by British railwaymen, which does not always receive the publicity which is its due. The Western, London Midland, and Scottish Region officials all played their part in this particular case to give the American visitor a standard of service which, on his first visit to Europe, made such an impression as to impel him to write to the British Transport Commission. That courtesy and helpfulness are to be met with on British Railways, of a standard as high as elsewhere in the world—not excepting the high standard on some U.S.A. Railways—is borne out by the incidents of this visitor's journey from Plymouth to Scotland. Service such as this, if rendered often and generously, will do much to encourage tourist traffic to these islands.

New Seaport and Railway in Tanganyika

THE official opening of Mtwara, the new port in the Southern Province of Tanganyika, and the railway serving it, should herald a new period of development of what for historical reasons has long been a neglected part of East Africa. They owe their completion to the foresight of Sir Edward Twining, Governor of Tanganyika, who, when the groundnuts scheme for which the port and the Southern Province Railway were designed was abandoned in 1950, urged the continuance of work in the interest of stimulating the productivity of the province in other

XUM

commodities. By the agreement of the British Government to waive a large part of the capital advances made by the Overseas Food Corporation to the East African Railways & Harbours in respect of the port and railway, East Africa gains a first class port and railway for less than half the true value of the project—more than £6,500,000. In this connection Major-General W. D. A. Williams, Commissioner for Transport, East Africa, paid a tribute at the opening ceremony last Saturday to Mr. A. F. Kirby, General Manager of the E.A.R. & H. and Major-General Williams' acting predecessor, for his conduct of the negotiations which resulted in the settlement. The Southern Province Railway is now open to all traffic over the 132 miles between Mtwara and Nachingwea, where small holdings and model farms have been opened up.

Overseas Railway Traffics

GOLD Coast Railway receipts for May were £355,051, a decrease of £10,561 over the corresponding figure last year. The aggregate receipts for the two months from April 1 were £663,953, compared with £750,673 for April and May, 1953. Midland Railway of Western Australia railway and road service receipts for April were £A63,776, an increase of £A7,767 over the 1953 figure. Aggregate receipts for the 10 months from July 1, 1953, were £A600,489, an increase of £A51,657 over the figure for the corresponding 10 months of 1952-53. Peruvian Corporation gross receipts for June were soles 10,341,000 and bolivianos 37,874,000, representing increases over the June, 1953, figures of soles 953,000 and bolivianos 10,510,000. For the twelve months to June, 1954, aggregate traffic receipts were soles 121,015,000 and bolivianos 527,462,000, against soles 111,271,000 and bolivianos 212,231,000 for the year ended June 30, 1953. The Peruvian average remittance rate was soles 54·50 to the £, as against 44·00 to the £ in June, 1953. The average remittance rate for the year ended June 30, 1954, was 51·50 as against 43·06 for the preceding year. The Bolivian official remittance rate for restricted amounts was bolivianos 537·08 to the £, the same as in June, 1953.

Modernisation Plan for the Philippines

A FIVE-YEAR plan to modernise the Manila Railroad in the Philippines may materialise as a result of recommendations made in 1952 by a United States firm of consulting engineers. It includes the replacement of all steam locomotives by 400 h.p. and 800 h.p. diesel-electric locomotives, the building and equipment of new workshops, re-signalling and track relaying with 75 lb. rail, and the construction of more than 700 miles of line on the island of Mindanao. Diesel-electric railcars, new coaches and wagons, cranes and much other equipment would be called for. The Manila Railroad, constructed by a British corporation, is a 3 ft. 6 in. gauge system operating entirely in the island of Luzon, the largest of the group. Since 1917 it has been owned by the Philippine Government and worked by a Philippine company. It was severely damaged during the war in south-east Asia, but of the 712 miles of line operated up to the war, some 588 miles had been restored by 1951. There are company-owned systems on the islands of Panay and Cebu, but so far Mindanao, the second largest of the Philippine islands, with an area of 37,000 sq. miles, has been without public railways.

Day Trips to the Continent

FOR the first time since the war, a special railway steamer will be used on August Bank Holiday to carry day excursionists to the Continent, in this instance between Folkestone and Boulogne, as recorded on another page. If day trips to the Continent are less readily made than prewar, this is the result partly of the high operating costs of ships, which necessitate what seems a somewhat high fare—40s. return from Victoria, for instance, allowing 5½ hr. in Boulogne. The greatest hindrance probably is the insistence of the immigration authorities on passports, which must deter many potential casual passengers. The British Customs formalities for returning travellers are likely to be conducted as expeditiously and as courteously as before the war despite the present necessity for thorough checks. These and the immigration formalities, however, especially when carried out at the port instead of in the boat train, have a nuisance value, though they cause greater inconvenience to the ordinary traveller to and from the Continent than to the excursionist, and in this respect put rail and sea at a disadvantage compared with air travel, where passengers are dealt with in smaller batches. The day excursionist nevertheless will travel by one of the best found, and, for its size, most comfortably appointed passenger ships in the world.

Punctuality of Liverpool Street Suburban Services

A FINE record of punctuality is shown by figures taken during morning and evening peaks last week on the suburban lines of the Eastern Region out of Liverpool Street. Of 518 trains running on the Liverpool Street-Shenfield electric service only 13 were late and those by only a few minutes; the totals showed that 96·2 per cent of the trains recorded were on time in one direction and 98·8 per cent in the other. Only six of 611 steam-hauled suburban trains working to and from Liverpool Street were more than five minutes late. From these results it is clear that the strict attention to timekeeping which has long characterised the working of these services, and without which the remarkably improved suburban service introduced by the Great Eastern Railway in 1920 could not have been provided, is still much to the fore at Liverpool Street. Results such as those of last week are not confined to weeks of reasonably good weather; for example, in the week ended January 17 last year nearly 90 per cent of all steam trains were punctual or no more than five minutes late and 93 per cent of all up electric trains arrived on time.

Visitors to Britain

THE annual report of the British Travel & Holidays Association calls attention to the excellent prospects for the British tourist industry. A target of at least one million overseas visitors a year, it claims, is a practical possibility. Earnings from tourism, including fares paid to British carriers, amounted to £126,000,000 in 1953, and are expected to rise to some £130,000,000 this year. In 1953 about £36,000,000 came from visitors from the United States and represented dollar earnings, and the report makes the point that European traffic is almost as important from the dollar aspect, as the European Payments Union provides for trade deficits with European countries to be settled in gold and dollars, and Britain is a large debtor to the Union. At a time when British Railways are once again running day excursions to the Continent, and reciprocal trips may be expected, this is a matter well worthy of consideration. No doubt British Railways, and the short sea services of the British Transport Commission, have profited considerably from the rise in tourist travel, and their close co-operation with the Association should ensure that the facilities offered by the Commission are brought to the notice of the 850,000 overseas visitors expected this year.

French Railway Terms

THE development of railway terms in the French language is the subject of a thesis accepted recently by the University of Paris from Dr. Peter Wexler, Professor of French in Manchester University. The need for new expressions arising from the advent of railways in France, was met either by creating new terms or simply by importing expressions from across the Channel; the interaction of these two tendencies is traced by Dr. Wexler. The visits paid by French engineers to this country in early railway days and the fact that Englishmen were concerned with the building of some early lines in France, even remaining in service thereon for some time afterwards, much influenced French railway terms. Some expressions originally used proved unsuitable and gave

place to others taken directly from English, such as *rail* and *tender*, the latter displacing the cumbersome *fourgon d'approvisionnement*, at first current. *Wagon* became general, but later was officially displaced by *voiture* for passenger vehicles, though it survives in *wagon-lits*, and so on.

German Signalbox Design

FOR many years the subject of signalbox design, specially the arrangement of lighting and windows, has been much debated in Germany. Even where track circuiting is in use—becoming more and more the practice in power installations—every effort is made to give as complete a view as possible over the lines and to reduce framings and stanchions to the minimum and so obtain a large window area. In earlier years in Germany little attention seems to have been given to this detail. The apparatus used in the mechanical-type signalboxes originally had many bright brass and steel parts, causing an objectionable amount of reflection and interfering with a good view outside in darkness, but, by eliminating them, or giving them a dull finish, and devoting careful attention to the form and arrangement of lights and their fittings much improvement eventually was effected. The question of dealing with mirror reflections, of either sunlight or artificial light, on windows also has received much attention and some boxes have been given inclined windows to obviate undesirable effects, seen here and there in this country, as at Whitemoor marshalling yard.

Accidents at Conington Crossing

THE account in our issue of July 9 of the bodily removal of Conington North Signalbox some 75 yd. to bring it adjacent to the level crossing and enable the gates to be worked from it recalls the fatal accidents there on March 1 and October 16, 1948, when the crossing was functioning as an occupation one, although traffic over it had become far greater than that over many admittedly public crossings. In the first accident a lorry containing German prisoners was run down in fog and six lost their lives. In the second, with rain interfering with visibility, a private motorcar was wrecked and its driver killed. His passenger had alighted to deal with the gates. Both cases were inquired into by Lt.-Colonel E. Woodhouse, and his combined report was summarised in our issue for January 21, 1949. He took the opportunity to review the whole problem of the occupation crossing, to which subsequent accidents have lent additional emphasis. Cases such as those at Wormley in 1934 and Hilgay in 1939, where the crossings were being used—and no doubt regarded—practically as public ones, had stressed the gravity of the risk, both to rail and road traffic, arising from the great increase in heavy vehicles serving farms, factories and so on.

Railway Museums in Germany

IN several Continental countries there have for many years been some excellent railway museums, some dating back to the 'eighties. The first one in Germany at Nuremberg dates from 1882. It began with materials provided for a trade exhibition, which after a time was taken to Munich. Eventually, however, the city authorities offered suitable accommodation and in 1896 the Royal Bavarian Railway Museum was opened in Nuremberg. The addition of a postal and telegraph section later caused the word "railway" to be changed to "transport." Gradually the collection became one of the finest of its kind. The Transport Museum in Berlin was opened in 1906 to house the costly models sent by firms and the Prussian State Railways to various international exhibitions and came to house the fine collection of permanent way items brought together by a mining engineer, A. Haarmann, and also the oldest known rail vehicle, from a Transylvanian mine of the 16th century. We believe this collection was saved from damage, but some private ones of signalling apparatus, held by firms in Berlin and Bruchsal, have been lost, with the contents of the Karlsruhe railway museum. Steps are now being taken to enlarge the Nuremberg Museum.

Railway Area Managements

FURTHER study of the proposals for reorganisation of the railways put forward in the White Paper, on which we commented last week, does little to dispel misgivings as to the suggested interposition of Regional boards between the British Transport Commission and the Chief Regional Managers. There are, however, some factors which give grounds for hope that, despite its disadvantages and within its limitations, the proposed organisation may work reasonably well in practice.

Apart from the fact of the Regional boards, the very existence of which must prejudice the autonomy and responsibility of Chief Regional Managers, the Commission has emphasised that day-to-day management is to be left to Chief Regional Managers and that the reorganisation of the railways should be developed from the principles of the interim organisation introduced last autumn; one of these principles was decentralisation from the Commission, as successor to the Railway Executive, and enhancement of these officers' powers and status. The Chairman of the Commission, Sir Brian Robertson, moreover is understood strongly to favour such decentralisation of authority, a principle he has himself practised in his business and military career.

One redeeming feature of the proposed boards is that their membership is to include no sectional interest. There is, for instance, to be no representative of organised labour as such The composition of the boards, and the amount of freedom eventually allowed them by the Commission, are the crux of the matter. It is to be hoped that leading businessmen and industrialists will give the railways the benefit of their ability and experience, though some of the Commission's proposals are not likely to attract them, such as the recommendation that precautions be taken to ensure that the boards "understand their role and were imbued with a sense of loyalty to the Commission as a whole"—which savours of totalitarianism. The suggestion that each board should include one or more Members of the Commission involves the risk of a tendency for the Commission element on a board to dictate Commission policy, though this can be avoided by moderation and goodwill. There is nothing suggested which precludes one of the Members of the Commission on a board from being its chairman, and this would seem to be envisaged by the Commission. Where there is a divergence of views, the fact that the chairman of the board was a Member of the Commission might seem an additional argument in favour of his impartiality. As the boards, however, are not to include sectional interests, the divergence is just as likely to be between the Commission point of view and that of other members of the board. There is much to be said for a non-railwayman being chairman. Such men are on the board to help it fulfil its managerial functions—not simply to represent the interests of railway users and the outside world generally; ample provision for this is made in the existing comprehensive consultative machinery. The delegation to area boards of certain powers to approve expenditure, and so on, should expedite business by enabling Chief Regional Managers to refer such matters to the boards instead of applying to the Commission. Chief Regional Managers may, according to the proposals, be members of the boards, but save in exceptional cases it is undesirable that they should be, for their functions are, or should be, distinct and separate, and membership of a board, in some circumstances, might be embarrassing, or at least hampering, to the Chief Regional Manager.

One of the most far-reaching of the Commission's proposals is the problematical inclusion of non-railway activities in the responsibilities of area boards. Organisation of transport functions at area level, including what is to remain of nationalised road haulage, has been mentioned by various speakers on a number of occasions ever since the present Government put forward its proposals, two years ago, for the reorganisation of nationalised transport. Clearly a Labour Government would wish somehow to include road passenger transport. It is not clear why in its present proposals the Commission has gone out of its way to approve the exclusion of hotels from

XUM

railway management. In certain places, such as packet ports, railway hotels can be, as they have been in the past, an integral part of the service provided by the railways; this was found to be the case by several railway companies before grouping in 1923, and the closure of more than one such hotel at ports by the late Hotels Executive on the ground that they did not pay their way, was false economy Whether the attachment to the staff of each Chief Regional Manager of a senior officer of the British Transport Commission Catering Service, to maintain liaison in the provision of train and station refreshment services, goes far enough, is doubtful. The provision of suitable refreshment services, especially in trains, even although they may not in themselves be profitable, is an important part of railway passenger service. This is more likely to be realised at Regional level than elsewhere. Moreover, the provision of catering services in certain trains at short notice is more easily achieved if the decision lies with the railway authority.

As to docks and inland waterways, the Commission in its recommendations to the Minister of Transport, comments on the fact that former railway-owned docks are not to be returned to railway management. This fact was already known, but in the Commission's recommendations it is stated that "the experience of separating the docks, other than the packet ports, from the railway has been fully justified, and the financial results confirm this. It is a specialised business and not part of the work of those who manage railways." The first statement is hard to justify, in view of the reorientation of traffic through the ports that has taken place in recent years; no comparison is possible between pre-nationalisation traffics and those since 1948. It is surely problematical whether the former G.W.R. South Wales ports, for instance, which were most efficiently managed before the war, would not have done as well under railway management. The statement that dock management is a specialised business is simply begging the question, and does not alter the fact that before nationalisation the railway-owned docks, with their highly competent specialist staffs, were a most useful auxiliary business to the railway companies. Despite the recommendation of the Commission, however, it is to be hoped that if the area boards eventually increase their responsibilities, these will include the docks formerly owned by the railways.

Meanwhile Parliament will have the summer recess in which to consider the suggestions made in the White Paper before it is debated during the next session. As the proposals, necessarily inconclusive as they are, already have met with the approval of the Minister and of a number of fairly widely differing interests consulted, they do not seem likely to emerge very much changed after their passage through Parliament, whatever criticisms may be made by the Opposition.

Press Reactions to the White Paper

PRESS comments on the White Paper outlining the future organisation of British Railways have, on the whole, been lacking in enthusiasm. The general tone of observations has been that the proposals are so indefinite in character that criticism must be reserved until it is seen how the scheme works out in practice. There is a feeling that the proposed area boards are likely to be controlled in too much detail by the Commission, and the relations between the Commission, the boards, and the Chief Regional Managers are often presumed to be a matter of some delicacy.

The Times considers that the scheme fulfils the requirements of the Transport Act, 1953, but not much more. The impression is that the area boards are being kept well under the thumb of the Commission, while the Commission is not committed with precision to the delegation of any particular powers. This, it is said, is cautious delegation, but the Act deprived the boards of any prospect of real autonomy. The scope for delegation is narrowed by what has been done in the Interim Organisation, and the Commission could scarcely commit itself to a pattern unalterable except by Parliament. Decentralisation is a matter of urgency. Fear of the dead hand of remote control is real, it is felt. There is too little guide to the real intentions of the Commission in the explanatory statement, and there is nothing concrete about any of the powers which may be conferred on boards.

The Manchester Guardian is concerned with the ability of the Commission to control the boards, but considers that the appointment of board members by the Commission should achieve this. The matter of the control of Chief Regional Managers by the boards is less clear. A Chief Regional Manager of strong personality may have matters too much his own way. The functional executive might be said to be doomed once the ghosts of the old general managers, the Chief Regional Managers, were restored. *The Daily Telegraph* thinks that the board system is good. It points out that no plans for road haulage are stated, but this could go under area control. Trial and error will determine the best organisation. Area headquarters now in London could well be transferred to the provinces. Devolution on these lines, would seem the most promising way of achieving competition and making railways self-supporting.

The *Daily Mail* says that the area boards should be in the provinces, and deprecates the close control exercised over them by the Commission, while the *Daily Express* thinks the scheme should stimulate a better spirit and better service. The *News Chronicle* considers the scheme promising and suggests that the possible control of road services by area boards may open a loophole for integration of road and rail services. The *Daily Herald* declares the scheme to be fragile, futile, and an insult to the intelligence, and that it will do no good to anyone, while *The Star* considers the White Paper even sillier than forecasts suggested. Co-ordination is needed, it says, not disintegration. *The Scotsman* is concerned with the ability of the boards to represent local interests and fears that the degree of autonomy granted to the Scottish board may be insufficient. *The Observer* concludes that the boards will be largely advisory in character, a function with which it concurs.

The Economist finds live area boards, under the conditions laid down, difficult to imagine and even more difficult to set up. The counterpoise between Commission, board, and manager, it says, will be vague and difficult. The Commission should be looking for partners, not subordinates. *Modern Transport* thinks that there may be a tendency for the boards to usurp the authority of the Commission, and, in striving for independence, deprive the railway system of many benefits of unification. The Chief Regional Managers, it says, should be responsible solely to the Commission, which must beware lest it finds itself saddled with six "railway executives" instead of one, one reason for abolishing the Railway Executive having been the removal of one layer in the management of the nationalised railways.

Diesel Developments in New Zealand

GREAT changes in operating on the North Island main line in New Zealand are foreshadowed by the arrival last month of the first of ten 2-C-C-2 type 1,500 h.p. diesel-electric locomotives being supplied by the English Electric Co. Ltd., and among the largest diesel locomotives so far built for a medium-gauge railway. They are designed mainly to haul heavy freight trains, and they will be able to run with the daily express freight trains between Auckland and Wellington, 425 miles, without refuelling on the way. Their gearing for a top speed of 60 m.p.h. will enable them to be used on passenger services.

The English Electric Co. Ltd. is also engaged on the manufacture of another type of diesel-electric locomotive for main-line working. These locomotives, of which 20 are to be supplied, and for which Robert Stephenson & Hawthorns Limited is building the mechanical parts, will be of the A1A-A1A wheel arrangement and of 750 h.p. The New Zealand Railways have a very restricted loading gauge and a low maximum axle-load, and the adoption of a design

in which one axle in each power bogie is idle has been largely dictated by the need to keep down the weight per axle. For the same reason the 1,500 h.p. locomotives have pony trucks to give better weight distribution.

A passenger service in daylight covering the distance between the two cities in about 11 hr., or three hours less than the time now taken by the steam-hauled limited expresses, may be introduced as soon as sufficient of the order for 35 twin-articulated railcar sets being carried out by the Drewry Car Co. Ltd., with the Birmingham Railway Carriage & Wagon Co. Ltd. as sub-contractor, have been delivered. These cars seat 88 passengers, compared with the 49 of existing New Zealand Railways railcars, and they have a top speed of 60 m.p.h., with rapid acceleration which makes them particularly suitable for operating over this difficult road, which has long stretches of 1 in 50 on its central section. With their three-position reclining seats, they will introduce a new standard of comfort into New Zealand railway travel. The vehicles have been designed to operate in multiple, forming a four or six-car train able to cope with fluctuations in traffic. The Drewry Car Co. Ltd. has been associated also with diesel locomotive development in New Zealand, having supplied numbers of shunting locomotives ranging in power from 100 to 260 h.p., for which either the Vulcan Foundry Limited or Robert Stephenson & Hawthorns Limited were the sub-contractors.

Ten of the railcars were originally intended for working over the Rimutaka incline, with its three-mile gradient of 1 in 15, on the Wellington-Masterton-Woodville line, and were to be equipped with the special brakes necessary to grip the Fell centre rail. The approaching completion of the 5½-mile Rimutaka Tunnel, which will replace the incline, makes this provision no longer necessary. On this service they will replace railcars which have been operating since 1936-37.

In their report to the Minister of Railways in 1953 the members of the New Zealand Railways Commission made particular reference to the improvement in passenger services which would be possible when the articulated railcars on order were introduced, and in his own report to the Commission last year Mr. H. C. Lusty, General Manager of the New Zealand Government Railways, also alluded to this prospect when he said that the railcars would replace a number of provincial express services now operating on a restricted basis and would maintain in due course regular daily runs, sometimes twice or three times daily, between important towns. This report was also significant in that it recorded the inauguration of diesel-electric main-line traction in the Dominion, represented by the introduction of the first units of a batch of 15 660 h.p. Bo-Bo locomotives being built by the English Electric Co. Ltd. which were assigned to suburban service at Wellington and Auckland; their design makes them suitable for mixed-traffic working on the main line.

May Traffic Trends

THE fifth issue of *Transport Statistics* covers the four-week period from April 26 to May 23, when industrial output recovered from a slackening in the first quarter of the year. For the month of April the manufacturing index was eight points and the "all industries" index seven points above April, 1953. In May the "all industries" index is expected to be seven points over April, against a rise of five points last year. Steel production reached a new peak average of 374,500 tons a week, compared with 350,700 tons in May last year. The bulk of the additional output of steel is being used in this country and there has been a keen demand for light rolled products, sheets, and tubes.

The active state of general business could not fail to add to the country's demands for transport, but in the four weeks to May 23 British Railways lost 564,000 tons of traffic. A serious feature about this fall of 2·4 per cent from the 1953 traffic level was the drop of 122,000 tons, or 3·2 per cent, in merchandise carryings. Last year larger tonnages of minerals and coal offset to some extent a decline of 3·5 per cent in merchandise during the May period, but this year minerals were down 115,000 tons (2·3 per cent) and coal class traffic 338,000 tons (2·4 per cent). A survey of the aggregates for 20 weeks to May 23 does not relieve anxiety about the railway position. The originating tonnage of 112,755,000 tons was 1,396,000 tons, or 1·2 per cent, below 1953. There is no prospect of a halt to the decline in originating merchandise, which amounted to 286,000 tons (1·5 per cent). Coal and coke declarations were lower by 520,000 tons (0·7 per cent), but may improve from June onwards. There is more uncertainty about minerals which were down 631,000 tons, or 2·5 per cent.

Our June 18 review of April traffic trends drew attention to the inroads road transport was making into the volume of heavy traffics suitable for rail conveyance. The danger of such diversions extending was made clear by the chairman of Coalite & Chemical Products Limited when addressing his shareholders on July 8. *The Times* reports him as saying that:

"Road transport is becoming more competitive and the railways are faced with a substantial loss of traffic unless they can make a more realistic approach to freight charges on coal.

"The stage has been reached when we must seriously consider the possibility of moving coal by road from collieries adjacent to our works. It is not for us to say whether or not it is in the national interest for these very considerable tonnages of coal to travel on the public highway."

All Regions showed a decrease in the aggregate tonnage for 20 weeks, though in very different degrees. While the London Midland, Eastern, and North Eastern Regions lost less than one per cent of their 1953 traffic, the Western was down 296,000 tons (1·5 per cent) and the Scottish Region 258,000 tons (1·9 per cent). The Southern Region had the exceptionally large decrease of 358,000 tons (11·2 per cent); originating traffic shrank to 2,827,000 tons, about 2·5 per cent of total forwardings over British Railways.

In the fifth four-week period British Railways worked 1,743,326,000 net ton-miles, a decrease of 85,981,000 (4·7 per cent). The North Eastern Region worked 2,764,000 more ton-miles (1·5 per cent), but the others reported decreases ranging from 1·6 per cent in the Eastern to 5·2 per cent in the London Midland, 7·8 per cent in the Scottish and 9·5 per cent in the Western Region. In the 20 weeks to May 23 the North Eastern Region worked 17,558,000 more ton-miles (1·9 per cent) and the Eastern also had an increase of 22,436,000 (1·2 per cent). Decreases elsewhere, varying from 3·2 per cent in the Western Region to 4·5 per cent in Scotland, brought down the aggregate ton-mileage to 8,811,344,000, a fall of 194,645,000, or 2·2 per cent. The effect of these changes in traffic volume on operating results cannot be judged precisely until statistics for 12 weeks to June 20 are published. Meanwhile rumour credits the North Eastern Region with a good showing in May.

April was a lean month for passenger travel. British Railways originated 84,090,000 journeys, 1,527,000 fewer than in April last year (1·8 per cent). First class journeys numbered 1,689,000, about 2 per cent of the total and a decrease of 127,000 (7 per cent) from April, 1953. These poor results reduced the aggregate for the first four months of the year to 314,372,000 journeys, an increase of 1,205,000, or 0·4 per cent. The first class aggregate fell by 69,000 to 6,666,000 journeys, a decrease of one per cent.

In the four weeks to May 23 London Transport railways carried 43,974,000 passengers, 1,114,000 fewer than in 1953 (2·5 per cent); road services carried 281,515,000 people, 12,193,000 fewer (4·1 per cent). Aggregate carryings for 20 weeks by rail and road were 1,586,861,000, representing the loss of 26,124,000 passengers (1·6 per cent). During these 20 weeks Road Passenger Transport (Provincial and Scottish) had 879,633,000 passengers, 8,346,000 more than in 1953 (one per cent). This year's travel by the Scottish Group tends to increase rather faster than the Tilling Group carryings.

LETTERS TO THE EDITOR

(The Editor is not responsible for opinions of correspondents)

Railway Charges in South Africa

July 16

SIR,—I have read with interest your leading article on the above subject in *The Railway Gazette* of July 16, but must point out that the higher level of fares in the new tariff is not due to the recommendations in our report. What we did say was that many of the rates on the lower classes of traffic did not cover even out-of-pocket cost of conveyance and that these should be raised and that the increased revenue so secured should be applied in relief of the excessive burden on higher class traffic.

We also recommended that the many free services performed by the railways for other Government Departments should, in future, be charged against the Government Department concerned with a corresponding credit to the railway working account so that in total the sum to be raised from the railway users would be *reduced*.

As regards the principle of "What the traffic will bear" we laid down the following rule:—

"To ensure that rating is based on business principles—

(1) Every rate must more than cover the direct costs, not merely of carrying an extra parcel of that particular traffic but of carrying the general run of that traffic in loads of normal bulk;

(2) Subject to (1) no rate must exceed what the traffic can reasonably bear.

I may say that our report has received the universal support and approval of the Chambers of Commerce and Industry in South Africa and it is unfortunate that the South African Railway Administration should have used the introduction of our revised tariff proposals to superimpose what appears to be a general rate increase.

Yours faithfully,

CHARLES H. NEWTON
Chairman, South African Railway Rating Policy Committee

Furzefield, East Grinstead, Sussex

Electrification on 1,500 V. d.c.

July 13

SIR,—The article in your July 9 issue on British Railways motor coach stock states that the M.S.J. & A. Joint line, converted in 1931, remained the only 1,500-V. line in the country for 18 years. In 1913 the North Eastern Railway decided to electrify its Shildon to Newport, Middlesbrough, section on that system. In spite of the first world war, the scheme, covering 18 route miles and 50 miles of track, was completed in January, 1916. Electric working went on successfully until the trade slump in the 1930s reduced the volume of traffic to a level which did not justify the expense of renewing and maintaining the overhead equipment.

In 1919 the success of the Shildon-Middlesbrough experiment encouraged the N.E.R. Board to approve in principle a plan for electrifying 80 miles of main line between York and Newcastle on the same overhead system. Sir Vincent L. Raven, who was then the company's Chief Mechanical Engineer, had seen early in his career the potentialities of electric power and studied its development at home and abroad. He was mainly responsible for the Shildon experiment and for the main-line project. An address, which he delivered to a railway audience at York in January, 1921, explained the advantages of electric traction over steam power for handiing a dense traffic, but later in the year the "grouping" of railways blighted the initiative of individual railways.

Many of the points Raven urged in favour of electric traction apply equally to diesel-electric working, which has the additional merits of avoiding expenditure on overhead equipment and of being the most flexible form of motive power for railway use. There is need for someone with Raven's enthusiasm, independence of judgment and powers of application to handle the problem of diesel traction. This important matter has been left to the Southern Region, where electric trains account for 65 per cent of coaching train miles and a scanty freight tonnage has decreased since 1948. In 1953 the Southern worked little more than 5 per cent of British Railways' total ton-miles and 5·4 per cent of total freight train miles, but 6·1 per cent of total freight engine hours, because it spent more than half of such hours on shunting. These traffic conditions do not offer a suitable field for testing the capabilities of the diesel locomotive for main-line haulage of either passenger or freight trains.

Yours faithfully,

R. BELL

Frognal, N.W.3

German Locomotive Performance

July 17

SIR,—Your correspondent, Mr. A. E. Durrant, quotes in your July 9 issue certain data from the editorial note in your issue of July 2, and for comparison takes certain random figures from tests conducted on the Western Region "Kings" in 1953. Against the maximum D.B.H.P. of 1,650 for the German engine I would point out that the maximum output with the "King" class engine No. 6001 was not 1,400, as quoted by Mr. Durrant, but 1,830; and in steady test conditions at that output the indicated h.p. was approximately 2,100.

Yours faithfully,

O. S. NOCK

20, Sion Hill, Bath

Passenger Services in West London

July 17

SIR,—Referring to Mr. Edward Treby's letter in your July 16 issue, may I say that it is doubtful whether lightweight diesel units fulfil all expectations? For example, there is the recent withdrawal of such a unit from the Harrow-Belmont service. It would appear that something more solid, similar to the bogie Bakerloo stock, is needed.

But the greatest attraction to rail travel and development, as every practical railwayman knows, is cheaper facilities. Fares should be immediately reduced to a penny a mile, with the ultimate objective of a halfpenny a mile.

Yours faithfully,

ROBERT W. LEWIS

Beth-El, 104, Leggatts Way, Watford

Articulated Locomotives

July 5

SIR,—In the second part of his interesting article on the above subject, in your July 2 issue, Mr. G. W. McArd draws attention to an oft-mentioned peculiarity of engines of the Garratt type. This is that the beats are seldom, if ever, heard to be out-of-step, even if one engine unit has slipped when the other has not, and that the correct four beat per revolution are thus given.

I have heard discussion on this point many times, but never a convincing explanation. Further it appears to apply to the Garratt type only, so far as my slight experience goes, for it is rare to hear the beats in step on some other types of simple articulated locomotive which I have encountered. I am thinking specially of the four-cylinder simple articulated 0-6-6-0 tanks in service in northern France on the lines of the Houillères du Bassin du Nord et du Pas-de-Calais, whose jumbled eight-beat exhaust is a characteristic of the machines in action.

I have no doubt that the explanation could be quite simple; I wonder if Mr. McArd, or another equally erudite locomotive man, could give us the reason?

Yours faithfully,

"6867"

THE SCRAP HEAP

Re-naming the Regions

There is wide agreement that the lowered esteem of railways is partly due to the break-up of the old loyalties since nationalisation, and notwithstanding the Commission's view, there is not yet much "Regional" *esprit de corps.* How can one become enthusiastic about so vague a body as a "region," or for that matter an "area," which now appears to be favoured? It is vital to the new régime to return to the title "railway," which is descriptive and clearly definable as an entity, around which new loyalties can be built within the general framework of British Railways. The old names may not be exactly applicable, but to take one example alone: "Caledonian Railway" is surely a more imaginative and practical designation than "the Scottish Area of British Railways"?—*From a letter to "The Times."*

Rainbow Railways

My chief interest in railway reorganisation centres on the future of the British Railways lion. It is rumoured that the six new Regions may be allowed "flashes" or emblems similar to divisional signs, and if this happens a splendid opportunity will present itself of getting rid of this ghastly quadruped. It seems that the Regions are not at this stage to repaint their rolling stock in distinctive colours. If they ever do, I hope they will be guided by the principles to which manufacturers of agricultural implements now mostly adhere (as did the men who made carts and wagons in the old days). Trains run either through open country, with which they should contrast, or through drab built-up areas, which they should brighten. For these reasons they should be painted in bold, bright colours, and never in any shade of green or brown. Our rural landscapes are much enriched by the blues and scarlets and yellows of the tractors and combines which crawl about the fields; the idea that trains ought to "harmonise" with the landscape is a silly idea.—*"Strix" in "The Spectator."*

Brunel and Go-slow Methods

Current comment in some quarters that a wider application of piece-rate payments to the labour force would lead to an increase in productivity on big construction projects would have met with only qualified support from Isambard Brunel, the original Chief Engineer of the G.W.R. While engaged on a previous project, the Thames Tunnel, Brunel was urged by his directors to encourage speedier progress by paying the men by results. Brunel's diary reveals his misgivings:

> August 21, 1826: This piecework has not been productive of much effect as to quantity of work. As to quality, it is very questionable. A work of this nature should not be hurried in this manner. Fewer hands, enough to produce 9 ft. per week, would be far better than the mode now pursued from necessity, but not from inclination on my part. Great risks are in our way, and we increase them by the manner the excavation is carried on.
>
> September 5: It is much to be regretted that such a work as the tunnel should be carried on by the piece. Obliged to drive on, no time is left to make any repair, or to recover any lost advantage.

Let it not be supposed that Brunel applied this go-slow policy to his own working methods. When engaged on a big project he frequently worked a 20-hr. day.—*From "The Manchester Guardian."*

The Hat Trick

Two anglers who found the railway bridge spanning the River Wick, in Caithness, on fire, repeatedly filled a hat with water from the river and poured it on the flames until they had extinguished them. They were crossing the railway to try the lower reaches of the river for salmon when, on climbing the embankment, they saw the timbers of the bridge ablaze. The fire was fanned by the wind which blew up between the girders. Two other anglers had seen the beams of the bridge beginning to smoulder. They threw some tea from their flasks on the beams and hurried two miles along the line to Wick Station, which stopped the incoming train from Inverness at Watten, eight miles from Wick. Inspection of the bridge showed that part of one of the cross-beams was burned away and that a support was charred.—*From "The Times."*

Austrian Railway Anniversary

A reproduction of the locomotive "Vindobona" and original coach of the Semmering Railway, Austria, which achieved its centenary last month and was the first Alpine trunk line

The New Deal

(*Interim note on the new proposals for British Railways*)

Speaking quite sub-judicially
And somewhat in parenthesis,
With little more to go upon
Than just a sketchy synthesis,
Can it be true that, here, at last,
The poor old railways have in view
Something to roll their sleeves up for,
Something to get their teeth into?

Qui vivra verra or, to speak
Colloquially, time will show
Whether this long-awaited scheme
Will really get us on the go.
Even if competition's "out,"
Let's hope at least "they" will ensure
That the old colours, loved and lost
Awhile, will blazon forth once more.

Suspending judgment on the plan
Till Parliament has gnawed at it
And experts, sitting on the fence,
Have also hummed and hawed a bit,
I strive to keep my baser self
From trotting out this peevish plaint:
"Why haven't you a single cent
"Salted away in print or paint?"

A. B.

OVERSEAS RAILWAY AFFAIRS

(From our correspondents)

EAST AFRICA

Opening of Mtwara-Nachingwea Line

The port of Mtwara and the line to Nachingwea were ceremonially opened on July 17 by Sir Edward Twining, Governor of Tanganyika. Both have been open for public business since January, but the ceremonial opening marked the completion of transit sheds, the new station, locomotive workshops and other installations. The occasion represented the culmination of seven years' work during which many inevitable setbacks and disappointments were encountered.

Mtwara port and the railway were begun in February, 1947, expressly to handle the envisaged 400,000 ton annual crop of groundnuts. The large tonnages of groundnuts did not materialise and the tempo of port and railway construction was slowed down. Timber, sisal, cashew nuts, grain and tobacco are expected to make up the bulk of the traffic through the new port, and estimations of future traffic are now related realistically to practical development possibilities.

Financing Southern Province Railway

The capital cost of the port and railway will have been about £6,500,000, compared with the estimate of £4,500,000 made in 1951 when it was decided to go ahead with Mtwara port and the railway despite the collapse of the groundnut scheme. A tripartite agreement was then entered into by the Overseas Food Corporation, the Tanganyika Government and the East African Railways & Harbours whereby the Overseas Food Corporation undertook to finance the completion of the port and railway, the Overseas Food Corporation and the Tanganyika Government jointly to cover annual working deficits for ten years and the East African Railways & Harbours to raise a loan to cover the capital cost.

The increase in cost coupled with a realistic assessment of traffic possibilities necessitated a review of the tripartite agreement and the British Government has proposed in a White Paper that it shall waive repayment of advances made by the Overseas Food Corporation to the East African Railways & Harbours before April 1, 1953, to finance the construction of Mtwara port and the railway. These advances, with interest, amount to over £3,750,000 and the effect of this act will be to reduce the capital to be found by East Africa to about £2,500,000. The Tanganyika Government will assume responsibility for the whole of the operating deficits, and the East African Railways & Harbours will not charge to the port and railway normal renewal contributions during the period of deficit operation.

SOUTH AFRICA

Cape Western Electrification

Electric working with 3,000 V. d.c. electric locomotives between Bellville and Touws River was inaugurated on May 14, on completion of electrification from De Doorns. Mr. J. J. Haywood, Member of the Railway Board, said that with electric traction the loads hauled across the Hex River Mountains from De Doorns would be increased from 774 to 1,000 tons. As reported in *The Railway Gazette* of June 4, conversion from 1,500 V. to 3,000 V. is to take place between Cape Town and Bellville. Mr. Hayward quoted estimates that with electric working throughout between Cape Town and Touws River, a down goods train of 1,200 tons would save 113 min. compared with a train of 1,126 tons hauled by a steam locomotive; while in the up direction electric traction would enable a 1,000-ton train to save 104 min. on the time required by a train of 820 tons with steam haulage. Passenger train journeys would show reductions of between 40 and 70 min.

Of the 40 North British-G.E.C.1-Co + Co-1 locomotives now in course of delivery, it is reported that 30 will eventually operate on the Cape Western system and 10 will work in Natal. All the 60 English Electric Bo-Bo locomotives of class "5E" are intended for the Natal section, and deliveries of these are expected to begin in September.

SOUTH AUSTRALIA

Progress with Gauge Conversion

Satisfactory progress is being made with the gauge widening between Mount Gambier and Millicent. At the beginning of April the line had reached the 310¼-mile post, midway between Burnda and Knights Siding. In addition a further mile of line has been laid out and will be put down shortly. Earthworks have proceeded to a point near Tantanoola. Shortage of labour is holding up a more speedy progress.

Improved Services to South East

Improvements to the Adelaide-Mount Gambier service are promised. Completion of re-modelling of station yards at Bordertown on the main Melbourne-Adelaide line and particularly at Wolseley, the junction with the main line, where many inter-State and south-eastern passenger and freight trains converge, is a necessary preliminary.

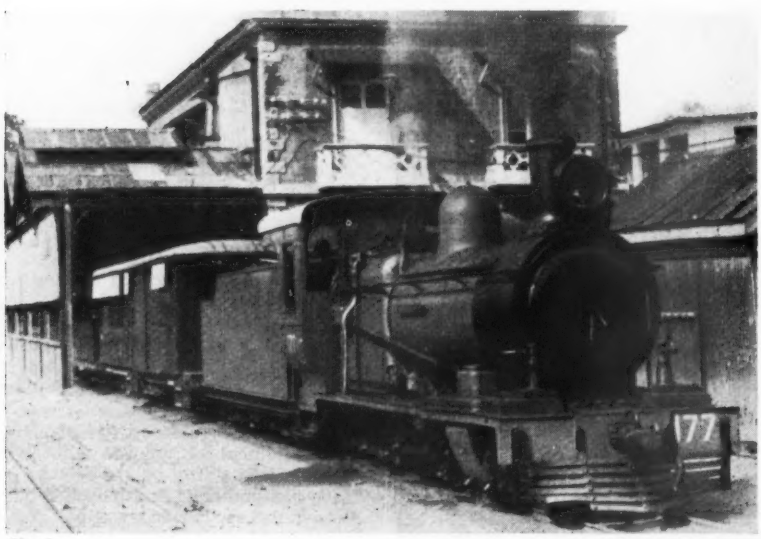
CANADA

New C.P.R. Coaches

The 173 stainless-steel coaches ordered from the Budd Company by the Canadian Pacific Railway will re-equip the trans-Continental services between Montreal and Vancouver and Toronto and Vancouver. The first will go into service this summer.

Each of the scenic-dome lounge-observation cars will be named after a national or provincial park; inside will be a map and murals of the park. The interiors of the coach-dome cars will be decorated with the Canadian and provincial coats-of-arms, a large map of Canada, and murals showing the development of transport in Canada.

Narrow-Gauge Working in West Africa



Photo] *[Michael H. Solomon*

Up train on arrival at Freetown hauled by 4–8–0 locomotive No. 177, "Jawi" of the 2 ft. 6 in. gauge Sierra Leone Government Railway

The sleeping cars will bear the names of distinguished Anglo- or French-Canadians, with a biographical plaque, and the dining cars those of rooms in the C.P.R. hotels.

Glass etchings will depict the official flowers of the provinces and aspects of Canadian life and industry.

ITALY

Railway Museum at Rome

A railway museum is to be opened in the basement of Rome-Termini Station. In addition to pictures, photographs, and diagrams, there will be scale models of locomotives and rolling stock, and a full-size reproduction of the first train on the Naples-Portici line, the first in Italy, opened in 1839; other exhibits will include a working model of an automatic block installation and scale models of principal stations.

FRANCE

New Signalboxes at Nimes

Until recently both signalboxes at Nîmes were of the Saxby-Farmer PLM mechanically-operated type. These boxes had been continuously in use since 1874 and were most expensive to maintain. Furthermore, the station is on a viaduct and the two signal cabins had been built on girders over the track; those structures not only restricted clearance, but also entailed special difficulties regarding the erection of catenaries when electrification was extended from Sète to Nîmes.

Two modern electrically-operated boxes were therefore built on platforms protruding from the viaduct. Each box has a "Mors" electric control panel; Box 1 has 30 levers (26 in operation) to control ten sets of points, ten signals and 30 route variations, and Box 2 has 40 levers (32 in operation) to control ten sets of points, 13 signals and 27 route variations.

The new boxes were brought into use at the end of November, 1953, and the old boxes demolished.

Double-Deck Wagons for Cars

Reference was made in our issue of May 30, 1952, to adaptation of flat wagons to carry cars in two layers. Although they are basically the same, further modifications have taken place on the wagons which can now convey five or six large, or eight small cars. The wagons have an upper loading platform measuring 48 ft. 6 in. long and a lower floor 47 ft. long.

The lower rates per car which the S.N.C.F. can offer as a result of the better payload of five to seven tons, instead of a maximum of two tons, has brought back to the railway considerable motorcar traffic. During the first 10 months of 1953 some 25,300 cars were moved in this way internally in France and 4,385 cars moved to ports and frontier stations for export.

Whitsun Traffic

Main-line passenger traffic out of the six important Paris termini during the Whitsun holiday was higher this year than in 1953. During the three days Friday, June 4, to Sunday, June 6 inclusive, 361,651 passengers left Paris, compared with 338,958 passengers during the comparable period last year, an increase of 6·7 per cent. During the same period there was a 16 per cent increase in seat reservations, but the number of trains run was virtually unaltered.

NORWAY

Bergen-Voss Electrification

Electric traction was introduced on July 2 on the Bergen-Voss section, 67 miles, of the Bergen-Oslo main line. The basic service interval between Bergen and Nesttun, 6¼ miles and the limit of the suburban area, is hourly.

Publications Received

What Every Engineer Should Know About Rubber. By W. J. S. Naunton. London: British Rubber Development Board, Market Buildings, Mark Lane, E.C.3. 8½ in. × 5½ in. 126 pp. Illustrated. Price 3s. 6d.—The unique properties of rubber make it a valuable material for many applications in the engineering industry, and the purpose of this publication is to provide the necessary information to enable the engineer to make effective use of the material. The greater portion of the book is devoted to specific engineering uses of rubber, and the remainder to the sources, properties, manufacture, and testing, which enable the engineer to acquire the necessary background knowledge of this material. A number of half-tones and diagrams are included showing various uses, deflection tests, and so on.

Henschel Lokomotiv-Taschenbuch, 1952 (*Henschel's Locomotive Pocketbook*). Kassel: Henschel & Sohn. 6 in. × 4 in. 408 pp. Illustrated. No price stated.—The last prewar edition of this useful pocketbook appeared in 1935. The present one maintains the same high standard and contains a quantity of information of varied character essential to the locomotive designer, particularly if occupied in industry and the export trade, such as details of gauges, structure and clearance measurements, with the calculations involved in designing for different service conditions, particulars of valve gears, boilers and fittings, bogie and truck construction and every item of locomotive design. Electric and other non-steam engines are referred to. Many diagrams, mathematical tables and statistical references, with photographs and folding plates, make the work of great service to all concerned in locomotive engineering.

The World of Oil.—The Petroleum Information Bureau has issued an illustrated booklet designed to give users of oil products some idea of production methods and processes. There are diagrams and photographs, and a section on lesser known uses of oil products describes some fields into which the entry of the oil industry is generally little known to outsiders. Copies are available, free of charge, from the Petroleum Information Bureau, 29, New Bond Street, London, W.1.

Conference on the North Sea Floods of 31 January - 1 February, 1953. Papers presented at the Institution of Civil Engineers in December, 1953. 8¾ in. × 5½ in. 241 pp. Illustrated.—Excellently produced, this summary gives a good idea of the damage caused, mainly by a combination of storm surge and tide, and the meteorological conditions leading up to it. It also discusses the soil mechanics of the defence works that failed on the different parts of the coast, and the incidence of tide and storm as a factor in their design. The various restoration works also are described. The papers are of interest rather to the railway engineer studying soil mechanics and protection problems, than to the general railway reader. The damage to railways and the remedial measures taken by railway engineers are not dealt with as such. (They were described in *The Railway Gazette* of April 3 and 24, 1953.) There is, however, in these essays a tribute to the Southern Region for its assistance in the North Kent Coast defences, where also 1¼ miles of railway main line embankment and track were virtually destroyed. "The organisation of about 750 special chalk trains which had to be fitted in with the ordinary traffic in 44 days" for the carriage of 200,000 tons of chalk also is applauded.

Linke-Hoffmann-Busch Products.—A six-page folder illustrates the diesel railcars and trains, and the various types of passenger and freight rolling stock built by the Linke-Hoffmann-Busch Waggon-Fahrzeug-Maschinen G.m.b.H., now established in new works at Salzgitter-Watenstedt, near Brunswick.

Eclipse Hack Saw Blades.—A comprehensive guide to assist users of Eclipse hack saw blades has been issued by James Neill & Co. (Sheffield) Ltd., Napier Street, Sheffield, 11. The booklet deals with the causes of breakages and the importance of the selection of the correct blade for specific material is stressed with the number of teeth which is dependent firstly, on the size of material to be cut, and, secondly, on the type of material. A number of diagrams are included which should be of considerable assistance to users of this equipment.

XUM

British Transport Commission (Organisation) Scheme, 1954

Proposals submitted by British Transport Commission to Minister of Transport and published in the White Paper

THE White Paper (Cmd. 9191) on the reorganisation of British Railways under the provisions of the Transport Act, 1953, published last week, consists of an official statement covering the proposals submitted by the British Transport Commission to the Minister of Transport & Civil Aviation, Mr. Alan Lennox-Boyd, and the proposals themselves.

The latter are in two parts: an explanatory statement, and the text of the proposals themselves, termed the British Transport Commission (Organisation) Scheme, 1954.

The more important of the provisions of the White Paper were the subject of an editorial article in last week's issue, in which also a summary was given of the official covering statement and of the explanatory remarks made by the Commission on its proposals to the Minister. Further editorial comment on the reorganisation scheme is made elsewhere in this issue.

Text of Proposals

The text of the formal proposals is given below. They consist of Part I (Preliminary); Part II (Reorganisation of the Railways); Part III (General); and three schedules relating respectively to areas, to Area Authorities, and to the statistics to be compiled and published for each area.

Part I: Preliminary

1. (1) This scheme may be cited as the British Transport Commission (Organisation) Scheme, 1954.

(2) This scheme shall come into effect as from the date on which the Order approving this scheme is made under Section 17 of the Transport Act, 1953.

2. (1) In this scheme, unless the context otherwise requires, expressions to which meanings are assigned by the Transport Act, 1947, and the Transport Act, 1953, shall have the same respective meanings, and—"the Act of 1953" means the Transport Act, 1953; "area" means an area specified in or under the First Schedule to this scheme; "authority" means an authority set up under any provision of this scheme; "Area Authority" means an authority set up under Article 4 of this scheme; "the Commission" means the British Transport Commission; "the Minister" means the Minister of Transport & Civil Aviation; "the railways" means the railways of the Commission other than those the operation of which formed part of the passenger transport services provided at the passing of the Act of 1953 by the London Transport Executive.

(2) Notwithstanding anything in subsection (7) of Section 35 of the Act of 1953, any reference in that Act to the Commission shall not, as respects matters falling within the scope of any delegation to any authority which is effected by or under this scheme, include a reference to that authority.

Part II: Reorganisation of the Railways

3. For the purposes of this part of this scheme, Great Britain shall be divided into areas, and the provisions of the First Schedule to this scheme shall have effect with respect to such areas.

4. (1) There shall be set up for each of the areas specified in paragraph 1 of the First Schedule to this scheme an authority consisting of a body of persons to be called by such name as the Commission may determine, and each such authority shall, for the purposes of the Act of 1953 and this scheme, be the Area Authority for the area for which they are set up.

(2) The provisions of the Second Schedule shall have effect with respect to the membership of, and otherwise in relation to, each Area Authority.

(3) The Area Authorities required to be set up under paragraph (1) of this article shall be so set up within three months of the date on which this scheme comes into effect, or within such longer period as the Minister may, either generally or in relation to a particular Area Authority, allow.

(4) The provisions of paragraphs (1) and (2) of this article shall apply in relation to any new or amalgamated area which may be specified under paragraph 3 of the First Schedule as if such area had been specified in paragraph 1 of that schedule.

Railway Functions of Area Authorities

5. (1) Subject to the provisions of this scheme and to such conditions and limitations as the Commission may impose, there shall by virtue of this paragraph be delegated to each Area Authority the function of ensuring that the policies of the Commission in relation to that part of their undertaking which consists in the operation of the railways are carried into effect and, subject as aforesaid and to the carrying into effect of such policies, also the following functions, that is to say:—

(*a*) the management of the railways; (*b*) promoting initiative in improving the services and facilities afforded to the public on the railways, and in effecting economies; (*c*) ensuring that contact is maintained with transport users so that the requirements of such users in relation to the railways may be met to the fullest possible extent consistent with the general duty of the Commission; and (*d*) ensuring that proper measures are taken affecting the safety, health and welfare of persons employed by the Commission on or in connection with the railways.

The delegation of functions by virtue of this paragraph shall take effect in relation to each Area Authority on such day as may be appointed by the Commission not being more than three months after the date on which that authority is set up or such longer period as the Minister may allow, and different days may be appointed for different Area Authorities.

(2) Subject to the provisions of this scheme, the Commission may delegate to all or any Area Authorities, subject to such conditions and limitations as the Commission may impose, such other functions of the Commission relating to that part of their undertaking which consists in the operation of the railways as they may specify and, subject as aforesaid, the Commission may at any time revoke or vary any such delegation.

6. (1) Subject to the provisions of paragraph (2) of this article, the functions of the Commission for the time being delegated to each Area Authority by or under Article 5 of this scheme shall be exercised and performed by that authority in relation to such parts of the railways as are situate within the area of the authority.

(2) Each Area Authority shall also exercise and perform, in relation to such parts of the railways situate in any other area as may be specified by the Commission, such of the functions for the time being delegated to that authority by or under Article 5 as may be so specified, and such specified functions shall be exercised and performed by that authority either concurrently with, or to the exclusion of, the Area Authority for that other area as the Commission may direct.

Setting up of Other Authorities

7. (1) There may be set up such authorities other than Area Authorities as the Commission, with the approval of the Minister, may specify.

(2) Any such authority may be an individual or a body of persons and, in the case of an authority which is a body of persons, the provisions of paragraphs 3 to 9 inclusive of the Second Schedule to this scheme shall, except in so far as the Commission may otherwise determine, apply as if such authority were an Area Authority.

8. Subject to the provisions of this scheme, the Commission may delegate to any authority set up under Article 7, subject to such conditions and limitations as the Commission may impose, such functions of the Commission relating to that part of their undertaking which consists in the operation of the railways as may be specified by the Commission, being functions which appear to the Commission to be unsuitable for delegation to an Area Authority, and, subject as afore-

said, the Commission may at any time revoke or vary any such delegation.

Publication of Statistics

9. (1) The Commission shall compile and publish as respects each area such statements of operating costs and such statistics as the Commission, with the approval of the Minister, may specify.

(2) Until such time as statements and statistics are specified in pursuance of paragraph (1) of this article, the Commission shall compile and publish annually as respects each area such statistics as are specified in the Third Schedule.

Non-Railway Functions of Authorities

10. Subject to the provisions of this scheme, the Commission may, with the approval of the Minister, delegate to any authority, subject to such conditions and limitations as the Commission may impose, any functions of the Commission not concerned or directly concerned with the operation of the railways, and, subject as aforesaid, the Commission may at any time, with the like approval, revoke of vary any such delegation: provided that this article shall not be construed as limiting any power of delegating or otherwise dealing with any of the said functions which is exercisable by the Commission otherwise than by virtue of this scheme.

11. (1) Subject to the provisions of paragraph (2) of this article, any Area Authority to whom functions are delegated under Article 10 shall exercise and perform those functions in relation to the area of that authority to such extent as may be specified by the Commission.

(2) Any such authority shall also exercise and perform in relation to any other area, to such extent as may be specified by the Commission, such of the functions for the time being delegated to that authority under Article 10 as may be so specified, and such specified functions shall be exercised and performed by that authority either concurrently with, or to the exclusion of, the Area Authority for that other area as the Commission may direct.

Part III: General

12. The functions of the Commission for the time being delegated to or exercisable by any authority by or under this scheme shall be exercised and performed by that authority on behalf, and in the name, of the Commission.

Recommendations to B.T.C.

13. Each authority shall, where it appears to the authority to be necessary or the Commission so require, make recommendations to the Commission in relation to any matter affecting the policy of the Commission, and each such authority shall furnish to the Commission such information as the Commission may require.

14. Whether or not any delegation of functions effected by or under this scheme is expressed to be subject to any conditions or limitations, every authority shall give effect to any directions which may be given to that authority by the Commission.

15. If any difference shall arise between an authority and any other authority as to the exercise or performance by either authority of any functions delegated to or exercisable by them by or under this scheme, such difference shall be referred to the Commission for determination, and the provisions of Article 14 of this scheme (which impose a duty on authorities to comply with directions given by the Commission) shall apply accordingly.

Abolition of Authorities

16. (1) The Commission may: (*a*) abolish any Area Authority whose area is, by reason of any variation of areas effected under paragraph 3 of the First Schedule to this scheme, abolished or amalgamated with any other area; and (*b*) with the approval of the Minister, abolish any authority set up under Article 7, if in either case there is, in the opinion of the Commission, no necessity for the continued existence of the authority.

(2) As from such abolition, any functions formerly delegated to or exercisable by the authority so abolished shall, unless delegated to another authority by or under this scheme, revert to and become exercisable by the Commission.

Reserved Functions

17. Such of the functions of the Commission as are not for the time being delegated to or exercisable by any authority by or under this scheme shall be reserved to the Commission.

18. Any functions of the Commission the delegation of which would, in the opinion of the Commission, prevent there being reserved to the Commission general financial control of its undertaking and general control of the charges to be made for the services and facilities provided for the purposes thereof, shall not be delegated to or exercisable by any authority under this scheme.

Provisions Relating to Areas

First Schedule (*Article* 3)

1. (1) Unless and until other provision is made in accordance with this schedule, there shall be five areas (in this schedule referred to as "the original areas") comprising between them the whole of England and Wales and such areas shall be known respectively as the Eastern Area, the London Midland Area, the North Eastern Area, the Southern Area, and the Western Area, or by such other names as the Commission may determine.

Scotland

(2) There shall also be an area consisting of the whole of Scotland, which shall be known as the Scottish Area or by such other name as the Commission may determine.

2. (1) The boundaries of the original areas shall be shown on maps prepared on the authority of the Commission and duly certified as maps prepared in accordance with this scheme, and such maps shall be prepared within one month from the date on which this scheme comes into effect.

(2) Copies of the said maps shall be available for inspection at such places and at such times during normal business hours as shall be specified in a notice duly published by the Commission.

Variation in Areas

3. (1) The Commission may vary the areas comprising England and Wales, and such variation may involve not only the variation of the boundaries of existing areas but also the formation of a new area from any part of an existing area or parts of existing areas or the amalgamation of an existing area with any other such area or part thereof, and any such new or amalgamated area shall be known by such name as the Commission may determine: provided that the areas comprising England and Wales shall not at any time be less than five in number.

(2) Every variation made in accordance with the preceding sub-paragraph shall be shown on maps prepared and duly certified in like manner as the maps showing the boundaries of the original areas, and copies of every map prepared for the purposes of this sub-paragraph shall be available for inspection at such places and at such times during normal business hours as shall be specified in a notice duly published by the Commission.

4. If any question arises as to the exact boundary of any area, as shown on any map prepared and certified for the purposes of this scheme, such question shall be determined by the Commission.

5. In this schedule: (i) "duly certified" means certified under the hand of the Chief Secretary of the Commission or some other person authorised by the Commission to act in that behalf; and (ii) "duly published by the Commission" means published by the Commission in the *London Gazette* and the *Edinburgh Gazette* and in such newspapers as the Commission may determine.

Provisions Relating to Area Authorities

Second Schedule (*Articles* 4 *and* 7)

1. Each Area Authority shall consist of a chairman and not less than two nor more than six other members, all of whom shall be appointed by the Commission in accordance with the next succeeding paragraph.

2. At least one member of the Authority shall be a Member of the Commission. Each member of the Authority who is not a Member of the Commission shall be a person who has in the opinion of the Commission had wide experience and is likely to be conversant with the circumstances and special requirements, in relation to transport, of the area of the Authority. The Commission may appoint any

member of the Authority to be chairman.

3. Every member of the Authority shall hold and vacate office in accordance with the terms of his appointment and shall hold office on such terms and conditions (including terms and conditions relating to remuneration) as may be determined from time to time by the Commission: provided that any member of the Authority (not being a Member of, or a person employed by, the Commission) may at any time by notice in writing to the Commission resign his office.

4. Any remuneration payable under the last preceding paragraph shall be paid by the Commission.

5. A member of the Authority shall, on ceasing to be a member, be eligible for re-appointment.

6. A person shall be disqualified for being appointed or being a member of the Authority so long as he is a member of the Commons House of Parliament.

7. (1) Any member of the Authority who is in any way, whether directly or indirectly, interested in any contract made or proposed to be made by the Authority on behalf of the Commission shall disclose the nature of his interest at a meeting of the Authority and such disclosure shall be forthwith recorded in the minutes of the Authority and any such member shall not take part in any deliberation or decision of the Authority with respect to that contract.

(2) A general notice given to the Authority by a member of the Authority to the effect that he is a member of a specified company or firm and is to be regarded as interested in any contract which may, after the date of the notice, be made with that company or firm shall, for the purposes of the last preceding sub-paragraph, be deemed to be a sufficient disclosure of the nature of his interest in relation to any contract so made.

8. The Authority shall have power to act notwithstanding a vacancy among their members.

Quorum of Authority

9. The quorum of the Authority shall be such as may from time to time be determined by the Commission, and the chairman of the Authority shall have a second or casting vote. Subject as aforesaid, the Authority may regulate their own procedure.

Third Schedule (Article 9)

Statistics to be compiled and published as respects each area.

1. Number of passenger journeys originating
2. Tonnage of freight train traffic originating
3. Train miles
4. Train miles per engine-hour
5. Engine miles
6. Engine-hours in traffic
7. Number of loaded wagons forwarded
8. Wagon miles
9. Loaded wagon miles: percentage of total
10. Wagon miles per engine-hour
11. Average wagon load at starting point
12. Average number of wagons per train
13. Average freight train load: in tons (net ton miles per train-mile).
14. Consumption of locomotive coal per engine-mile (in lb.)
15. Consumption of electricity by electric motor vehicles: in units per car-mile
16. Net ton-miles
17. Net ton-miles per engine hour.

Pennine Electric Operation

Temporary changeover point at Penistone from electric to steam haulage for both passenger and freight trains

WITH the completion of stage two of the Manchester-Sheffield-Wath electrification on June 14 last, all trains are electrically hauled over the main line between Manchester London Road and Penistone. The mineral line thence to Wath was electrified in stage one of the scheme, brought into service on February 4, 1952.

Penistone has thus become an important changeover point for both passenger and freight trains, though this function will be lessened after September 20 next, when electric haulage of passenger trains will be inaugurated on the Penistone-Sheffield Victoria section. When the whole scheme is completed next year with the electrification of the Sheffield Victoria-Rotherwood section for freight trains, Penistone will cease to be a changeover point; all freight trains from south and east of Rotherwood will be electrically hauled northwards from that point.

Immediately before stage two could be brought into force special arrangements had to be made on the preceding Saturday and Sunday to enable the first train on Monday morning with electric working to pass through the new instead of the old Woodhead Tunnel. After 10 p.m. on the Saturday, single-line working was instituted between Dunford Bridge and Woodhead through the old up line tunnel. At midnight the engineers were given complete possession of each side of the tunnel until 6 a.m. on the Monday, to enable the old lines to be broken and the new permanent way laid in. All passenger trains on the Sunday were routed via Huddersfield and a steam shuttle service provided for local needs between Guide Bridge and Hadfield. The first passenger train to be electrically worked eastbound and to traverse the new tunnel was the 8.30 a.m. Manchester London Road to Marylebone, and westbound the 6.45 a.m. Leicester Central to Manchester Central

About 50 of the 57 Bo-Bo mixed-traffic locomotives ordered for the electrification are now in service; none of the six Co-Co locomotives building has yet gone into service. Under electrification, the only banking is between Wath and West Silkstone or Dunford except in the case of terminating trains at Barnsley Junction in the down direction. The banking engines are attached to the front of up Wath trains for regenerative braking purposes down the Wentworth Bank.

Freight Working

Freight trains bound for Sheffield and points south of Sheffield are electrically worked to Willey Bridge Junction, on the Sheffield side of Barnsley Junction, Penistone. Those in the reverse direction change from steam to electric haulage at Huddersfield Junction, immediately south of Penistone Station. Freight trains are worked between Rotherwood Sidings, which is not a marshalling yard but a locomotive changeover point, and Penistone by steam locomotives which shuttle between these points, thus avoiding what otherwise would have been much uneconomical light engine movement.

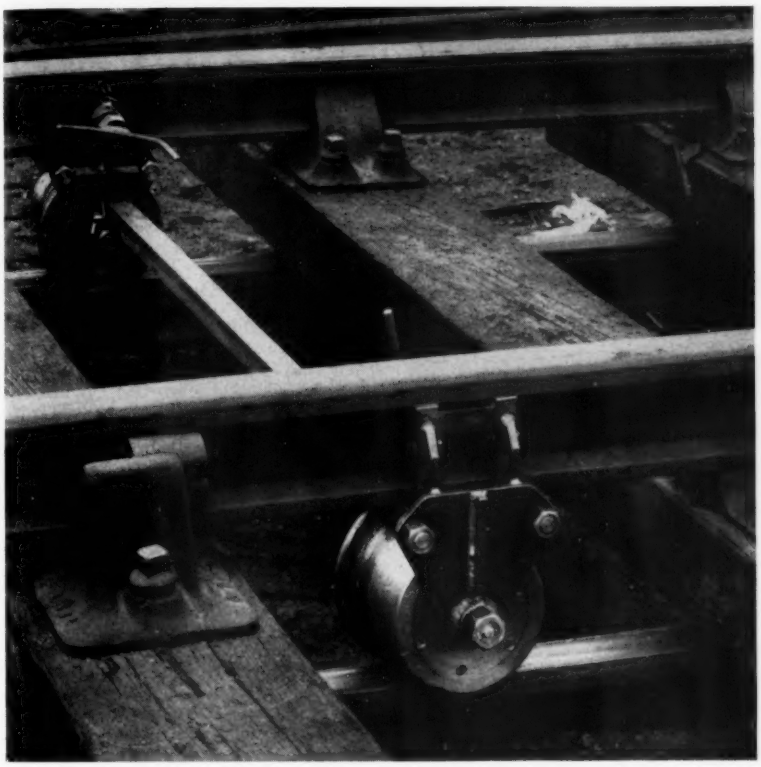
The change of motive power for passenger trains takes place in Penistone Station and six minutes are allowed. The table below shows the number of booked trains passing through Penistone weekly this summer:—

Description of train	Weekly totals			
	Sheffield direction		Wath direction	
	Up	Down	Up	Down
Passenger and parcels	96	98	—	—
Freight	220	282	162	224
	316	380	162	224
The daily average is thus:				
Passenger and parcels	16	16	—	—
Freight	37	47	27	37
	53	63	27	37

It will thus be seen 116 trains change locomotives at Penistone daily; trains to and from Wath are electrically hauled throughout. The full effect of electrification on the passenger train schedules over the main line will not really be felt until it has been carried through to Sheffield. Some trains have already been accelerated, however, including all those on Sundays, which show gains of from four to 30 minutes in the up, or Manchester-Sheffield, direction, and from one to 22 minutes in the down direction.

Mechanised Relaying on Single Lines

Western Region method of towing complete sections of lifted track



A pair of wheels attached to a length of lifted track to enable it to be towed away for dismantling

THE Western Region of British Railways has tackled the problem of more economical relaying on single lines by the introduction of a mechanised method which provides for complete sections of old track, several rail lengths at a time, to be hauled clear of the site. The sections are then towed to a place where they can be dismantled and loaded away without interference to the running line, or loaded complete into wagons by a crane standing on a convenient siding so that the old material can be conveyed to a depot for dismantling. This method is particularly suitable for some single line tunnels. The ballast in the cribs between the sleepers is removed and the old section jacked up to enable the new rails, on their sides, to be slipped under the ends of the sleepers. This provides a smooth bed for the old section to slide up to the ramps, which have been specially designed for attachment by fishplates to the section ahead of that being removed.

Use of Detachable Wheels

Small wheels are fixed to the lengths of old track to be drawn away which run on the rails of the old track still *in situ*. An engine is attached to the end of the old lengths which can be towed at speeds up to 15 m.p.h. to the place where they are to be loaded complete by crane, or dismantled. No difficulty has so far been experienced from curvature.

The locomotive used in the case illustrated was a small diesel, part of the civil engineers' department plant, but where tunnel work is not involved a steam engine is equally suitable for this purpose.

Development of Method

Satisfactory and economical development of this method of working depends largely on pulling out the old track at a rate equal to, or faster than, the speed at which laying in the new track, with any allowance for work on drainage or preparing the formation, can be carried out.

The number of weekend occupations of the line have been reduced by using this method of relaying. Further economies are possible if a practical means of pulling in the new track sections can be devised and this aspect is being given consideration.

Lifted track being hauled on to the running line for removal; the special ramps can be seen in the centre and a pair of wheels on the extreme right

XUM

French-Built Locomotives for Brazil

Ninety goods engines for operating on the Brazilian metre-gauge system

One of the first locomotives to be completed, shown on test on a French metre-gauge line, the Réseau Breton

ORDERS for 90 locomotives for goods traffic working on the metre-gauge lines of Brazil, were placed with the Groupement d'Exportation de Locomotives Gelsa by the National Railway Department, Brazil. The railways, located mostly in the eastern and north-eastern provinces, have a mileage of 22,793 miles of which some 20,660 are metre-gauge.

The contract was split up between the following firms—Société Batignolles-Châtillon, Société Francaise des Constructions Mécaniques, and the Compagnie de Fives Lille, who were responsible for building engines only, the Société des Forges et Ateliers du Creusot, who built engines and tenders, and Société Anonyme Baume et Marpent and Société des Enterprises Industrielles Charantaises, who built tenders only.

The locomotives are of two types, 4-8-4 and 2-8-4 wheel arrangement with axleloads of 13 and ten *tonnes* and tractive efforts of 26,000 and 20,000 lb. respectively, calculated at 85 per cent boiler pressure. Twenty-four of the former and 66 of the latter types were built. The 4-8-4 engines have 12-wheel tenders of 22 cu. m. capacity, while of the 66, 2-8-4 locomotives, 16 have 12-wheel tenders of 18 cu. m. capacity, and 50 have eight-wheel tenders of 14 m. 3 capacity.

Coal and Wood Fired

Forty-one of the 2-8-4 types are coal-fired and 25 are wood-fired. The locomotives are designed to negotiate curves of 80 metres radius, and have maximum speeds of 80 km. per hr. for the 4-8-4 and 60 km. per hr. for the 2-8-4 type. Some of the locomotives are fitted with airbrakes and others with vacuum brakes. Steam atomised, wheel flange grease lubricators of the Lubrovia type are fitted to all locomotives.

Much of French locomotive practice has been embodied in both designs, and considerable attention was given to obtaining maximum interchangeability having regard to existing designs on the Brazilian railways, such components include the axleboxes of the trailing wheels, which are similar in both cases, also wheel and axle dimensions which are the same as locomotives already in service.

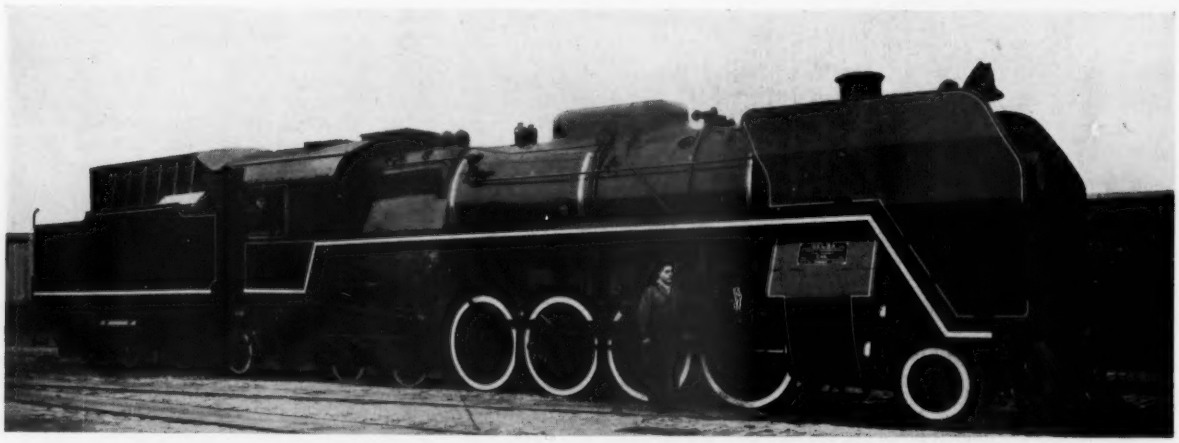
Monobloc Cylinders

The cylinders are of cast steel of monobloc design, and are of similar dimensions in each type. As a result the pistons, crossheads, and piston valves are similar, and the only difference is in the piston valve stroke. Both boilers are of Belpaire design with welded steel fireboxes, Nicholson thermic syphons are fitted and the smoke tubes are welded to the firebox tubeplate.

The 4-8-4 locomotive boilers have a grate area of 56·8 sq. ft. and are fitted with mechanical stokers, while the 2-8-4 type with a grate area of 42·85 sq. ft. are hand-fired; both are fitted with a steam grate shaker of the Franklin type. The coal-fired boilers are designed to burn Brazilian coal which is said to be heavily impregnated with pyrites having a calorific value of less than 4,500 calories. Superheater headers of the Schmidt type are fitted, and boiler feed is by means of a Worthington pump and Thermix injectors on the 4-8-4, and two Thermix injectors only on the 2-8-4 locomotives. The exhaust is of the Kylchap type, double on the 4-8-4, and single on the 2-8-4 locomotives.

Engine Frames

The engine frames in each design are of rolled-steel slab 100 mm. thick on the 4-8-4, and 80 mm. thick on the 2-8-4 locomotives. Cast-steel bracings are also fitted between the main frames. The drawgear is a centre



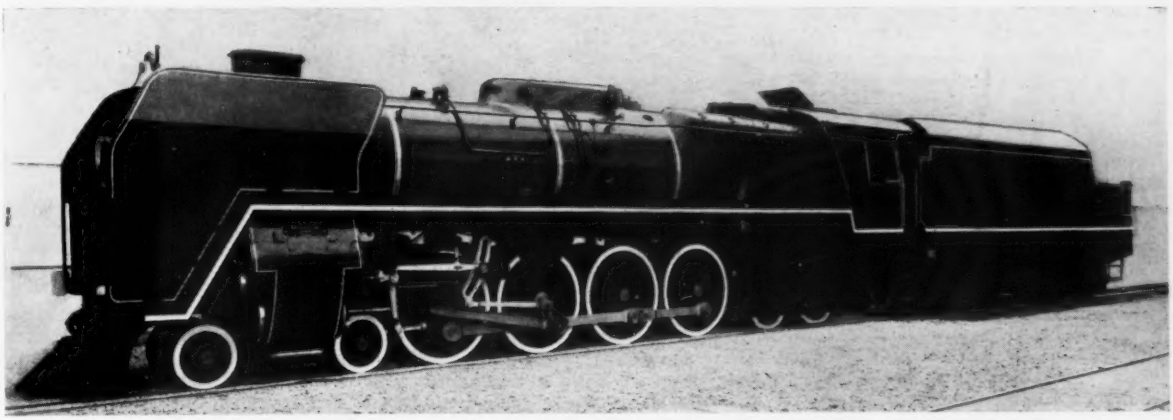
Brazilian Railways 2-8-4 type locomotive with a tractive effort of 20,000 lb. at 85 per cent boiler pressure

coupler of the American type, while the cast-steel dragbox affords considerable strength to the rear of the frame.

The smokebox, which is arranged for self-cleaning, is carried in the cylinder saddle casting, and at the firebox end by a steel casting which also acts as a frame stretcher, phosphor bronze liners are fitted.

Suspension is said to be particularly flexible through a combination of laminated, coil, and helical springs of Willoteaux design. In each design coupled axleboxes are oil-lubricated both mechanically and by pads in the axlebox keeps; and the tenders are fitted with Athermos axleboxes. Teloc speed indicators are fitted and turbo-generators are provided, lighting being arranged in the cab, and also in the vicinity of the motion to assist in inspection and oiling.

4-8-4 *locomotive hauling a mineral train on Vitoria-Minas Railway*



Brazilian Railways 4-8-4 *type locomotive of* 26,000 *lb. tractive effort at* 85 *per cent boiler pressure*

New Building for Ipswich Motive Power Depot

Administrative block of the new motive power depot at Ipswich, Eastern Region, showing (left) main entrance and bicycle store in basement, and (right) illuminated notice board in entrance hall, roof lighting and use of glass and steel

XUM

Railway Pipeline from Kilimanjaro, E.A.R. & H.

Gravity water supply being provided for locomotives on Mombasa-Nairobi line

THE problem of adequate water supplies over stretches of the East African Railways & Harbours system running through many miles of arid country between Mombasa and Nairobi has always been difficult, particularly along the 70 miles between Makindu and Kiu. It has been possible, in the past, to obtain sufficient water from shallow springs and boreholes, but with the ever-growing demand for water created by the increase in the number of trains now being run to meet the transport needs of a developing country, it has become necessary to find other sources of supply.

The extent of the problem can best be judged from the fact that one of the large engines at present in service requires some 33,000 gal. of water for the 330-mile journey between Mombasa and Nairobi, and the demand will be still greater when the new and larger locomotives now on order are put into service, for they will consume 60 per cent more water. When these locomotives arrive, the daily consumption of water between Mombasa and Nairobi will be some 1,000,000 gal.

Surveys for Pipeline

In this dry and inhospitable country it was inevitable that the railway engineers should turn to the perpetual snows of Kilimanjaro, some 60 or 70 miles to the south, for a supply of water both adequate in quantity and quality. In 1951, therefore, a reconnaissance was made over the northern slopes of Kilimanjaro in search of a suitable source of supply among the numerous springs there, and this resulted in the discovery of Ol Turash Springs with a daily flow of some 5,000,000 gal. of clear, sparkling water.

Alignment of the pipeline looking along the 40-mile straight stretch towards Sultan Hamud

Having found the water, it was necessary to prove that it could be brought by pipeline under gravity flow through the valleys and foothills of the lower slopes of Mt. Kilimanjaro and across the arid Kiboko Plain to the railway line between Emali and Sultan Hamud. This was done by carrying out a detailed survey, from which contour plans and a profile were prepared. Subsequently, recommendations made to the Transport Advisory Council were approved, and work was begun on this project in November, 1953; it is now well in hand.

When complete, the pipeline will be 65 miles long, of which 40 miles will be in a straight line, and the quantity of water that will ultimately be drawn from the springs is expected to be about 500,000 gal. a day.

Near Sultan Hamud, a 2,000,000-gal. reservoir is to be constructed from which a branch pipe will be laid to take water as far as Simba, some 15 miles. At Simba, a 1,000,000-gal. reservoir will be built.

There will also be a pumping station near Sultan Hamud to force water up to Kima, a distance of 7½ miles, and at Kima a second pump will be installed to supply water to Kiu where another reservoir of 2,000,000 gal. capacity is planned.

The whole scheme is estimated to cost approximately £820,000. However, the railway administration will not alone benefit from this scheme, as it has agreed to a proportion of the water being tapped for the use of the Masai herdsmen at five points along the pipeline.

MONT BLANC ROAD TUNNEL.—The Italian Chamber of Deputies has ratified the Italo-French agreement signed in February, 1953, for joint construction of a road tunnel, 7½ miles long, under Mont Blanc, entering near Chamonix and emerging near Entreves in Piedmont. The cost is put at £10,000,000.

EXTRA TRAINS FOR GLASGOW FAIR HOLIDAYS.—The Scottish Region of British Railways ran many extra trains in connection with the Glasgow Fair holidays. On July 16 and 17 some 60 additional trains left Glasgow for destinations in England, including 10 "Starlight" excursion trains to London on July 16. On the same day a special train from Buchanan Street carried 500 passengers direct to Dover for Continental tours. Other through trains conveyed passengers to Aberdeen, Inverness, Wick, Mallaig, Oban, Edinburgh, and the Fife coast. The regular services to Helensburgh, Gourock, Wemyss Bay, and the Ayrshire coast were augmented. On July 16, 14 trains ran to Ardrossan with passengers for the Isle of Man, and other special trains carried Belfast passengers to Ardrossan and Stranraer. Other special trains and excursions ran from Lanarkshire towns to various destinations. Holiday-makers who stayed at home were offered a selection of rail and steamer weekly runabout tickets, and numerous day, half-day, and evening excursions were available.

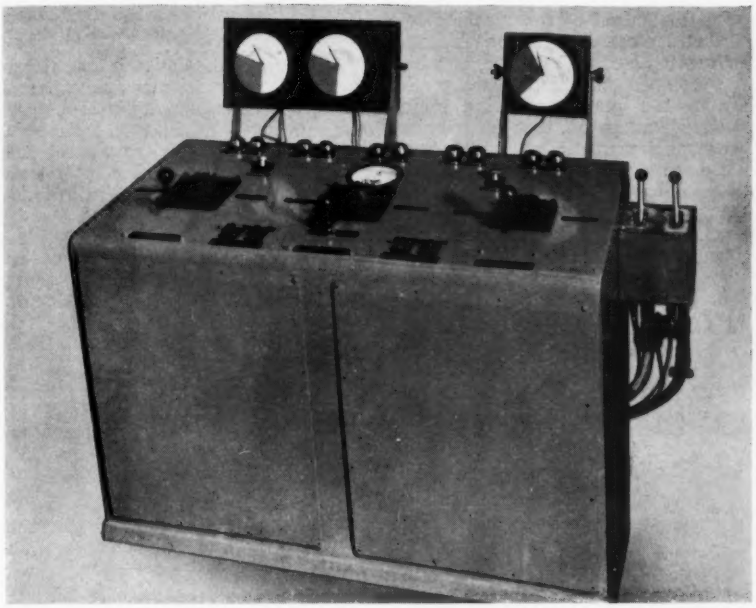
MARCONI INTERNATIONAL MARINE COMMUNICATION CO. LTD.: CHANGE OF TELEPHONE NUMBER.—The telephone number of Marconi House, Strand, registered office of The Marconi International Marine Communication Co. Ltd., is now Covent Garden 1234 instead of Temple Bar 1577 as formerly. The telegraphic address—Thulium, Estrand, London—is unchanged.

UNIVERSAL BESCO MODEL E.14 SWAGING MACHINE.—F. J. Edwards Limited, 359-361, Euston Road, London, N.W.1, has evolved a machine, Besco model E.14, for sheet-metal working. The machine is motorised, and of all-steel construction, and handles flat sheet, discs, cylinders, and drums up to 14 G.W.G. mild steel, of 28 tons tensile. Twelve pairs of rollers are supplied for swaging, ogee beading and so on. Special rollers can be supplied as extras for flanging, crimping, and beading, bottom closing, and planing down operations. Centres of spindles measure 4 in. in working position with 2⅝ in. available for rollers; the speed of the rollers is 15 r.p.m.

TEDDINGTON INDUSTRIAL EQUIPMENT: NEW OFFICES.—Teddington Industrial Equipment Limited, Sunbury-on-Thames, Middlesex, manufacturers of automatic control equipment, has recently opened two new area offices for providing a technical consultation service in the application of its equipment for air-conditioning, refrigeration, and industrial processes. The addresses are: Scottish area, 134, St. Vincent Street, Glasgow, telephone Central 7935; Manchester area, 31, Quay Street, Manchester.

Heavy-Duty Plate Bender

Four-roll combined bending and straightening machine



Single-operator control desk, showing the layout of air valves and indicator dials

A HEAVY-DUTY plate bending and straightening machine, which is said to be probably the largest of its type yet produced in this country, has been designed and manufactured by Joshua Bigwood & Son Ltd., Wolverhampton. The machine is intended to fulfil the requirements of fabricating workshops, such as locomotive boiler builders, and firms engaged in the manufacture of cylindrical vessels, especially those firms which have not a sufficiently large output to justify the installation of separate machines for levelling and curving plate.

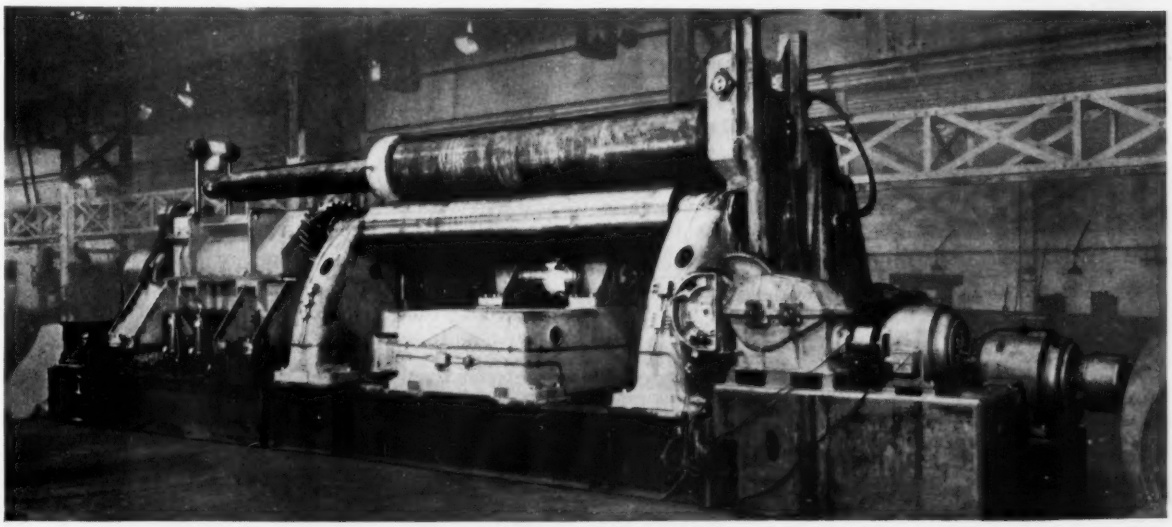
The machine has three rolls arranged in pyramid, which are used in the usual manner for rolling plates in cylindrical or conical forms. In addition, there is a fourth roll which can be quickly set into a position in which it converts the machine into a four-roll leveller. All machine movements are motorised and are controlled from a separate control desk. The machine which weighs some 116 tons, can deal with steel plates up to 12 ft. wide, $1\frac{3}{4}$ in. thick in 28/32 tons tensile, or $1\frac{1}{8}$ in. thick plate of 45 tons tensile, the minimum circle rolled is 39 in. and 32 in. in $1\frac{1}{4}$ in. and $\frac{5}{8}$ in. thick plate respectively. Rolling speeds, forward and reverse, are 13 ft./min.

Design Features

The rolls, 12 ft. 4 in. long, are machined from high-carbon steel forgings, and the housings are heavy steel casting, and carry the two bottom rolls in phosphor-bronze sleeve bearings. Chocks, working in slides machined in the housings between the lower roll bearings, and secured by thrust pins to heavy adjusting screws, carry the top roll. The worm and wormwheel nut and heavy-duty roller thrust-bearing forming the top roll adjusting gear, are enclosed in the housing castings and driven through reduction gearing by electric motor.

The main drive is by a 110 h.p. motor of the slip-ring type, running at 720 r.p.m. and connected through a Bibby coupling to the main gearbox. The gearbox is of steel fabrication containing double-helical gears. A feature of the design is that all bearing shafts and gears are so located that the top of the gearbox can be removed without disturbing running parts, and facilitates ease of inspection. The gearbox is sectionalised for lubrication purposes, the high-speed section being lubricated by means of an oil bath, and the low-speed section by pump feed.

The top roll is extended to terminate in a ball-end under a swivelling yoke, which forms part of the jacking screw mechanism used to balance the weight of the top roll, and so relieve pressure on the outer bearing when the housing



Heavy-duty plate bending and straightening machine under construction at the makers' works

XUM

is swung clear for the removal of rolled sections. The housing, the weight of which is counter balanced, is operated by a series of levers in combination with pinion gearing.

The jacking screw motor is push-button controlled, driving through a slipping clutch, and is fitted with plug braking. An air-operated clutch is included in the drive for top roll adjustment and when this is disengaged the inner end of the roll can be moved independently of the outer end, thus the top roll can be tilted to bend plates to conical form. Magslip indicators at the control desk show the positions occupied by the bending, and also the levelling, roll during operation.

The bottom bending roll on the side adjacent to the levelling roll is reinforced to take the heavier load by a pair of support rollers at the centre of its span; the rollers run in phosphor-bronze bearings carried in a cast-iron cradle mounted on the main bed of the machine.

Prefabricated Bed

The main bed of the machine is a fabricated steel construction and runs the full length of the machine, on which are mounted machined facings for carrying the gearbox, driving motor, housings, and so on, thus ensuring accurate alignment of all components. Electric interlocks and limit switches are provided as a protection against over-running of all motorised movements.

The electrical equipment includes the 110 h.p., 720 r.p.m. main driving motor, a 50 h.p. motor running at 720 r.p.m. for top roll adjustment, a jacking screw motor of 7½ h.p., a swinging end, bearing motor of 10 h.p., and a straightening roll adjusting motor of 15 h.p. The roll diameters are, top roll 26 in.; bottom rolls 22½ in.; straightening roll 17 in.; and support rolls 18 in.

Single Operator Control

A feature of the design is that a single operator can exercise complete control during operations, the five motor controllers, air control valves, and indicating dials being located at the control desk. Two Farvalube lubricating systems are incorporated to ensure effective lubrication of all bearing points.

Similar dual-purpose machines with an additional straightening roll for five-roll levelling are also manufactured by the firm.

Mercury Fluorescent Lamps for Lighting Sidings

Installation at Chartres, French National Railways

Sidings at Chartres, French National Railways, illuminated by mercury fluorescent lamps grouped on three towers

A DEVELOPMENT in the use of mercury lamps for outdoor lighting has been the installation in the sidings at Chartres, French National Railways, of lamps of this type with a fluorescent powder coating. The elongated light source of the normal tubular fluorescent lamp is not easily adaptable to siding lighting practice, for which concentrated sources are usual. In the lamps installed at Chartres, the discharge takes place inside a short quartz tube enclosed by a glass envelope similar in shape to an ordinary lamp bulb. The fluorescent coating of the envelope provides light with colour-rendering properties much superior to those of the mercury discharge alone.

The lamp rating is 400 W. (or 485 W. with the transformer) and the efficiency 37 lumens per watt. Although higher efficiencies are obtainable with plain mercury lamps of similar construction, the fluorescent coating has the advantage for this application of modifying the greenish colour of mercury light so that there is less risk of confusion with signals.

At Chartres the units replaced by the new type were filament lamps giving 20 lumens per watt and having a life of 300 hr. in comparison with the 4,000 hr. obtainable from the mercury fluorescent lamps.

Not only is the concentrated light source of the latter superior in the present application to the fluorescent tube, but the protection of the discharge tube by the outer envelope ensures satisfactory starting and maintenance of output in very low temperatures.

Originally 16 filament projector lamps were distributed among three 98½-ft. towers for lighting the sorting sidings and unloading area, which are on opposite sides of the main line, and the total lighting load was 7·9 kW. In the modernised installation two more lamps have been used, giving a load of 8·7 kW.

Even with the relatively compact source of the mercury fluorescent lamp the beam was not as narrow as that from a filament projector lamp, and to obtain the desired result the visors of the floodlights were lengthened. A more evenly graded falling-off of illumination, measured along the axis of the tracks, has been achieved, and the bright spot at one point, characteristic of the distribution from a projector lamp, is avoided. The absence of glare has been particularly advantageous in view of the proximity of the lighting to main running lines.

Illumination Values

Illumination values range from 1 lumen per sq. ft. to 0·3 lumen at the boundaries of the sidings. Measured along the axis of the beam, the light from a single projector varies from 0·4 or 0·5 lumens per sq. ft. at 44 yd., to about 0·1 or 0·15 lumens at 175 yd., according to the size of visor on the floodlight. Experiments which have been made with visors varying in length from 19½ in. to 39½ in. It is considered that current developments in the lamps themselves and trials of new optical systems in the floodlights show prospects of significant improvement in the illumination of sidings where much work goes on at night. The lamps at Chartres have been supplied by the Etablissements Claude, Paz, et Silva,

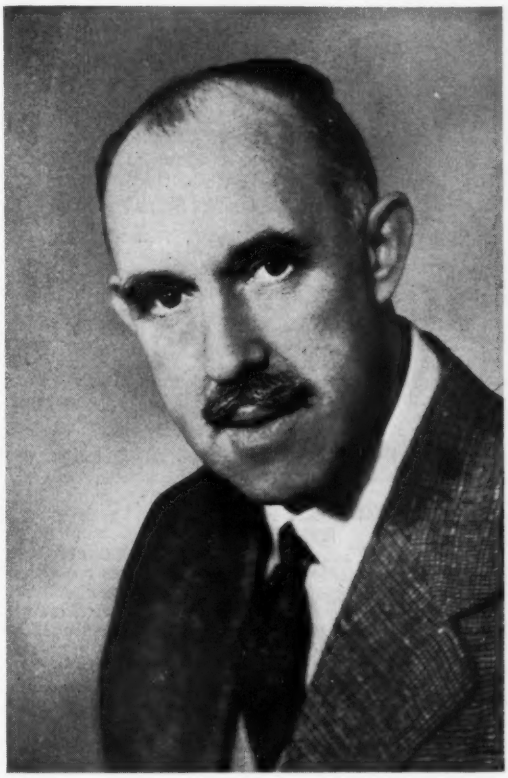
RAILWAY NEWS SECTION

PERSONAL

TRANSPORT USERS' CONSULTATIVE COMMITTEE FOR SCOTLAND

The Minister of Transport & Civil Aviation has appointed Mr. W. J. Mason, who is a representative of Commerce & Industry, to be a member of the Transport Users' Consultative Committee for Scotland.

Mr. Mason is General Manager, Tube Production, of Stewarts & Lloyds Limited.



Mr. C. G. Harrison

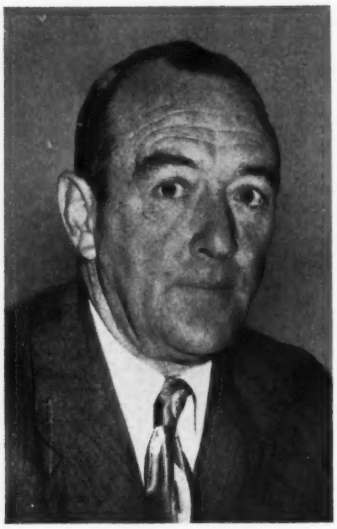
Appointed General Manager, Malayan Railway

The late Mr. Edward Thompson

Chief Mechanical Engineer, L.N.E.R., 1941-46

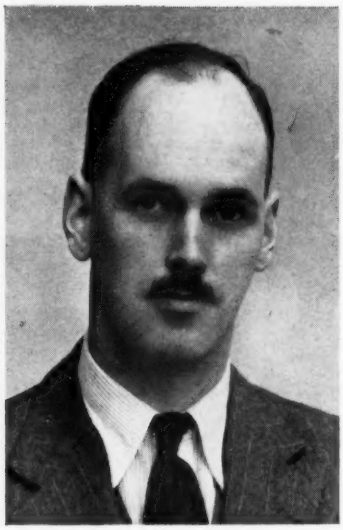
Mr. C. G. Harrison, A.M.I.Mech.E., M.I.Loco.E., A.M.I.I.A., Deputy General Manager, Malayan Railway, who, as recorded in our July 16 issue, has been appointed General Manager of that system, was educated at St. Patrick's Cathedral School, Dublin, and matriculated at London University, where he studied engineering externally. He began his railway career as pupil engineer to Mr. W. H. Morton, M.I.Mech.E., Chief Mechanical Engineer, Great Southern Railways, Ireland, and was later appointed successively Carriage & Wagon Assistant and Assistant Works Manager at Inchicore Works. He was a member of a number of railway technical commissions and was Vice-President of the Engineering and Scientific Association of Ireland. Mr. Harrison joined the Colonial Engineering Service in 1938, being appointed Assistant Chief Mechanical Engineer, Federated Malay States Railways. Interned in Sumatra by the Japanese he administered a large internee hospital as Lay Superintendent. He was appointed a Member of the Malayan Government's Joint Wages Commission in 1947, receiving the special thanks of the Governments for his contribution to its work. In 1949-50 he officiated as Deputy General Manager, Malayan Railway, and, in 1951, as Locomotive Running Superintendent. On being appointed Chief Mechanical Engineer in 1952 he reorganised the Mechanical Engineering Department to incorporate Locomotive Operating. He was appointed Deputy General Manager in January this year. He has, in addition to his duties as General Manager, recently assumed the temporary appointment of Minister for Transport in the Government of the Federation of Malaya and a Member of the Executive and Legislative Councils.

We regret to record the death on July 15, at the age of 73, of Mr. Edward Thompson, O.B.E., M.I.Mech.E., M.I.Loco.E., Chief Mechanical Engineer, London & North Eastern Railway, 1941-46. Mr. Thompson, who was the subject of an editorial in our June 21, 1946, issue, on his retirement, was educated at Marlborough and Pembroke College, Cambridge. He took the Mechanical Science Tripos in 1902, and subsequently served with Beyer, Peacock & Co. Ltd., and with the Midland Railway at Derby under the late Sir Cecil Paget, then Works Manager. In 1905 he left the Midland Railway to join the staff of the Royal Arsenal at Woolwich, and in the next year was appointed to a position in the Running Department of the North Eastern Railway. He became Assistant Divisional Locomotive Superintendent at Gateshead in 1909. Three years later Mr. Thompson was appointed Carriage & Wagon Superintendent of the Great Northern Railway, and, in March, 1916, returned to the Royal Arsenal at Woolwich on war service. In December of the same year he proceeded to France, where he was attached to the headquarters staff of the Director-General of Transportation; he attained the rank of Lieutenant-Colonel, R.E., was mentioned twice in despatches, and was made an O.B.E. (Military Division). On his demobilisation in March, 1919, he resumed his work with the G.N.R., until his return to the N.E.R. in October, 1920, when he was appointed Carriage & Wagon Manager at York. With the formation of the L.N.E.R. in 1923, he was given a similar post for the whole of the North Eastern Area, with offices at Darlington, and control of the works at York, Shildon, and other points. His next appointment, in 1927, was that of Assistant Mechanical Engineer, Stratford, where he became Mechanical Engineer in 1930. He returned to the North Eastern Area as Mechanical Engineer of that area in 1934. Five years later Mr. Thompson became Mechanical Engineer, Southern Area (Western Section), and, in 1941, on the death of Sir Nigel Gresley, he was appointed Chief Mechanical Engineer of the L.N.E.R., the position



Mr. D. L. MacDonald
Appointed Assistant Chief Electrical Engineer, Victorian Railways

Mr. J. L. M. Moore
Senior Railway Employment Officer, Ministry of Transport, who is retiring



Mr. A. W. McMurdo
Appointed District Engineer, Shrewsbury, Western Region

from which he retired in 1946. In that year, at Marylebone Station, the Chairman and Directors of the L.N.E.R. honoured him by naming class "A2" Pacific No. 500, the then latest engine of the L.N.E.R. and the 2,000th to be built at Doncaster, *Edward Thompson.*

Mr. D. L. MacDonald, who, as recorded in our July 9 issue, has been appointed Assistant Chief Electrical Engineer, Victorian Railways, took his degree of Bachelor of Electrical Engineering at Melbourne University. Joining the Victorian Railways in 1921, he was lent to Merz & McLellan, consulting engineers for the Melbourne suburban electrification scheme. In 1926, Mr. MacDonald was granted extended leave for experience in the United States of America. For the next two years he worked with the Pennsylvania Railroad and gained experience in both steam and electric transportation. He was also with the Illinois Central Railroad in both operating and maintenance sections of the Chicago suburban electrification.

Mr. John Leslie Mackenzie Moore, O.B.E., A.M.I.Mech.E., Senior Railway Employment Inspector, Ministry of Transport, who, as recorded in our July 2 issue, is retiring on July 31, was born on April 25, 1889, and educated at Radley and Pembroke College, Oxford. He served his apprenticeship at Ashford Locomotive Works from 1909 until 1912, when he joined the South Eastern & Chatham Railway as a Locomotive Inspector. In November, 1914, Mr. Moore enlisted in the Artists Rifles, being commissioned in the Field in May, 1915, as 2nd Lieutenant, R.O.D., R.E., and serving in France and Belgium. He was awarded the Military Cross and twice mentioned in despatches. Demobilised in May, 1918, with the rank of Major, Mr. Moore was in the same month appointed Traffic & Dock Superintendent at Richborough on the South Eastern & Chatham Railway, and, in June the following year, he returned to the Locomotive Department as Assistant to the Outdoor Locomotive Superintendent. In August, 1923, he joined the Ministry of Transport as Assistant Inspecting Officer of Railways. This position was later redesignated Senior Railway Employment Inspector. He has been in charge of the Personnel Accident Section, under the C.I.O. of Railways, since 1935. Mr. Moore was awarded the O.B.E. in 1944.

The following appointments have been announced by British Railways, London Midland Region:—

Mr. J. H. Hambidge to be District Operating Superintendent, Stoke-on-Trent.

Mr. F. J. Williams to be Assistant to Commercial Superintendent (Freight Terminal Working) Euston.

Mr. R. H. Williams, A.M.I.C.E., A.M.I.Mech.E., M.I.Loco.E., Railway Employment Inspector, Ministry of Transport, succeeds Mr. J. L. M. Moore as Senior Railway Employment Inspector.

Mr. L. A. M. Ginger, A.M.I.E.E., Assistant Electrical Engineer (Outdoor), London Transport Executive, has been appointed Assistant Chief Electrical Engineer.

Mr. H Branton, Generating Station Superintendent (Lots Road), has been appointed Assistant Electrical Engineer (Generation), with responsibility for the work in connection with all three of the L.T.E.'s generating stations (Lots Road, Neasden, and Greenwich).

We regret to record the death, on July 13, at the age of 71, of Mr. Thomas F. Lister, Chairman of Hackbridge & Hewittic Electric Co. Ltd.

Her Majesty the Queen has been graciously pleased to approve the promotion of Mr. H. Adams Clarke, former Chief Officer (Staff & Establishment) at the Railway Executive, to the Dignity of a Knight of the Venerable Order of the Hospital of St. John of Jerusalem. Mr. Adams Clarke was Chairman of the Headquarters' Committee on First Aid Matters from 1948 until his retirement from the service in November, 1953, and for many years before nationalisation he took a very active interest in first aid matters with the former Great Western Railway Company.

Mr. A. W. McMurdo, M.B.E. (Military), B.Sc. (Hons.), A.M.I.C.E., Assistant District Engineer, Paddington, Western Region, British Railways, who, as recorded in our June 25 issue, has been appointed District Engineer, Shrewsbury, Western Region, entered the service of the London Midland & Scottish Railway in 1932, obtaining his degree at Glasgow University while still an engineer pupil. Entering H.M. Forces in 1939, he served with the Royal Engineers, before which he was Engineering Assistant at Birmingham. On his return, in 1946, he was appointed Outdoor Assistant at Glasgow, where, two years later, he became Assistant in the District Engineer's Office. In 1950, Mr. McMurdo transferred to the Western Region, when he was Assistant District Engineer at Plymouth, and, in 1953, he moved to Paddington in a similar capacity.

Mr. L. Reeves, M.I.Mech.E., M.I.Loco.E., Acting Carriage and Wagon Engineer, Eastern and North Eastern Regions, Doncaster, British Railways, has been confirmed in that position with effect from March 1, 1953.

We regret to record the death on July 18, at the age of 81, of Sir Ernest Willoughby Petter, formerly President of the British Engineers' Association, a member of the executive of the Federation of British Industries, and a Vice-President of the Institute of Mechanical Engineers.

Mr. R. Ellis, B.Sc.Tech.(Hons.), A.M.I.Mech.E., previously Technical Sales Representative of Leyland Motors Limited, has been appointed Manager of British United Traction Limited. Mr. Ellis's immediate duties will be concentrated on the expanding activities of the company which, last year, formed a new division to handle diesel train units. He will be responsible to the B.U.T. board for the design, development, and marketing of the company's trolleybuses and diesel train units. The B.U.T. Diesel Train Division is working in close collaboration with the Ulster Transport Authority and also with British Railways on the B.T.C.'s £2 million programme for the development of lightweight multi-unit diesel trains.

Mr. John W. Darr has been appointed Director of Public Relations & Advertising, A.C.F. Industries, Inc.

Mr. P. O. Wymer, B.Sc., A.M.Brit.I.R.E., has been appointed Press Officer in the Publicity Division of Mullard Limited. He takes up his appointment on August 3.

Mr. F. J. A. Mangeot, a Director of Dowty Equipment Limited, has been elected to the board of Dowty Fuel Systems Limited.

BRITISH INTERNAL COMBUSTION ENGINE RESEARCH ASSOCIATION

At the recent Annual General Meeting of B.I.C.E.R.A., the Rt. Hon. the Viscount Falmouth, M.I.Mech.E., was re-elected President. Sir Harold Cox, Ph.D., D.I.C., M.I.Mech.E., F.R.S.; Dr. S. F. Dorey, C.B.E., M.I.C.E., M.I.Mech.E., F.R.S., Chief Engineer Surveyor, Lloyd's Register of Shipping; Major-General H. R. B. Foote, V.C., C.B., D.S.O., Director-General, Fighting Vehicles Division, Ministry of Supply, and Vice-Admiral (E) F. T. Mason, C.B., Engineer-in-Chief of the Fleet, were re-elected Vice-Presidents.

Mr. G. W. Bone, Mr. J. Calderwood, Dr. A. R. Morcom and Mr. A. V. Wilkin were elected to the Council; the Council also includes Mr. H. D. Carter, Mr. C. G. Tangye, and Mr. G. A. McMillan (representing the Department of Scientific & Industrial Research).

INSTITUTION OF MECHANICAL ENGINEERS

The following elections to Membership and Associate Membership have been announced by the Institution of Mechanical Engineers:—

Members:—

Mr. A. C. Main, B.E. (*Adelaide*), Metropolitan-Vickers Electrical Co. Ltd.

Associate Members:—

Messrs. J. G. Auld, M.Sc. (*Witwatersrand*), Merz & McLellan; K. A. Cooke, Plessey Co. Ltd.; D. Gibb, B.Sc. (*Durham*), Boiler Design Department, Clarke, Chapman & Co. Ltd.; S. M. Gieszczykiewicz, B.Sc. (Eng.) (*Lond.*), Metropolitan-Vickers Electrical Co. Ltd.; I. P. R. Home, R. A. Lister & Co. Ltd.; D. Kut, B.Sc. (Eng.) (*Lond.*), Powell Duffryn Technical Services Limited.

INSTITUTE OF TRANSPORT

Election of Ordinary Members of Council 1954-55

The following nominations of the Council have been elected with effect from October 1, 1954:—

Members:—

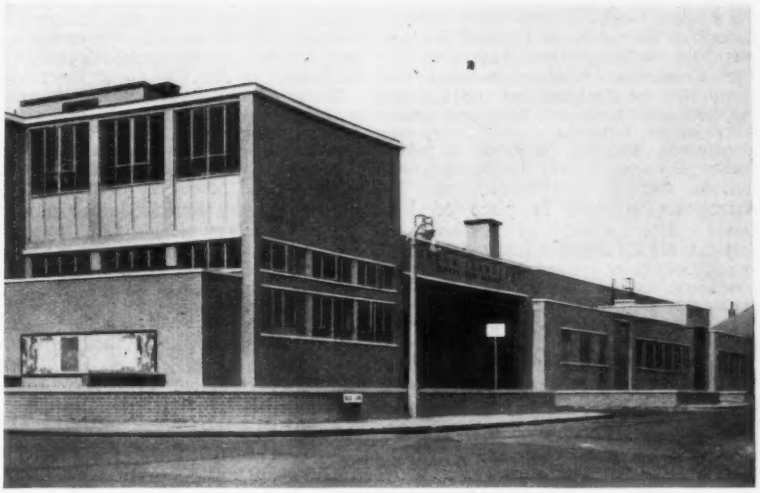
Messrs. E. W. I. Arkle, Commercial Superintendent, L.M. Region, British Railways; R. P. Beddow, Director, British Electric Traction Co. Ltd.; W. Bray, Sales Planning Manager, British Overseas Airways Corporation; A. B. Findlay, General Manager, Leeds City Transport Department; F. D. M. Harding, O.B.E., General Manager, Pullman Car Co. Ltd.; H. W. Howard, Assistant (Claims & Salvage) to Commercial Superintendent, Western Region, British Railways; A. J. Pearson, Chief Administrative Officer, British Transport Commission; R. E. Sinfield, Continental Superintendent, Southern Region, British Railways; G. W. Quick Smith, Member of the Board of Management, British Road Services.

Associate Members:—

Mr. J. W. Swan, Traffic Superintendent (Scotland), British European Airways.

Reconstruction of London Transport Garage

Extension to house bus-washing, cleaning, and re-fuelling equipment



Administration block (left) of Elmers End Garage showing method of construction; bus exit on right

The London Transport bus garage at Elmers End, originally built in 1929 by the London General Omnibus Company, was partially destroyed in July, 1944, by a flying bomb. In recent months the garage has been reconstructed to current London Transport standards on the original site and, at the same time, a considerable extension has been provided to house the latest bus-washing, cleaning and re-fuelling equipment. Today the garage provides for the parking and day-to-day maintenance of 93 vehicles and incorporates administrative offices, with a staff canteen and recreation room.

The building is of steel-frame construction with brick facings. The greater part is taken up by the parking area, which is some 220 ft. × 135 ft., and the servicing area about 175 ft. × 40 ft.; both areas are roofed by single-span steel trusses supporting pressed-steel decking, the former being reconstructed substantially in the original manner. Other areas are roofed by precast concrete units, also used for the first floor construction.

As at other new London Transport garages, the circulation of buses is one-way, buses passing through the servicing area before parking.

Parking Area

Within the parking area are pits which are part of the original establishment; these can be covered over when not in use to provide additional parking space. Vacuum cleaning facilities are provided adjacent to the pits as well as to the servicing area for interior cleaning.

Administration Block

The entrance to the administration and canteen block forms a notice hall for the display of schedules, duty rosters and general information, and leads to the conductors' room, where tables are provided for use in making up way-bills and checking tickets and cash before paying-in over a form of bank counter to the combined cash and ticket office. The offices for the District Superintendent and Chief Depot Inspector are housed in this part of the building.

The architects were Messrs. Wallis, Gilbert & Partners, in association with Mr. Thomas Bilbow, F.R.I.B.A., Architect to the London Transport Executive. The consulting engineers were Messrs. S. H. & D. E. White, while heating and ventilation work was carried out under the supervision of Mr. H. Carter, New Works Engineer, London Transport.

The main contractors for the reconstruction works were Mullen & Lumsden Limited. Structural steelwork was supplied by Redpath, Brown & Co. Ltd. The principal sub-contractors were:—

D. Burke & Son Ltd. ...	Folding, sliding doors and traffic office counter
Concrete Limited ...	Precast concrete units
Dennison, Kett & Co. Ltd.	Roller shutters
Durable Asphalte Co. Ltd.	Asphalt roofing
E. J. Elgood Limited ...	Granolithic pavings
Ellis (Kensington) Limited	Heating and hot water installation
Mather & Platt Limited...	Sprinkler installation
Matthew Hall & Co. Ltd.	Plumbing
Mellowes & Co. Ltd. ...	Lantern lights and metal sashes
National Flooring Co. Ltd.	Terrazzo pavings
Nettlefolder & Moser Limited	Ironmongery
Osgood & Co. Ltd. ...	Tiling
Ruberoid Co. Ltd. ...	Felt roofing and decking
Uxbridge Flint Brick Co. Ltd.	Facing bricks
Williams & Williams Limited	Patent glazing

INSTITUTE OF TRANSPORT: WEEKEND COURSE AT ASHRIDGE.—The Institute of Transport has co-operated with Ashridge College, Berkhamsted, in the arrangement for a weekend course on "Transport," to be held from Friday evening, September 17, to Monday morning, September 20. Sir Gilmour Jenkins, President-Elect of the Institute, will give the opening address. The course is open equally to members of the Institute and to non-members, and ladies may also attend. The inclusive cost is £3 15s.

Railway Students' Association Convention at Exeter

Papers on geography and traffic problems of the South-West, and visits to transport installations

The seventeenth annual convention of the Railway Students' Association, London School of Economics & Political Science, was held at Exeter from July 9 to 13. The Convention headquarters was the Hope Hall of Residence of the University College of the South-West, and nearly 50 members attended. Mr. C. E. R. Sherrington, Director of Research Information Division, British Transport Commission, and a Vice-President of the Association, presided in place of Mr. David Blee, Chief of Commercial Services, B.T.C., who was unavoidably prevented from being present. Mr. Sherrington was supported by Mr. L. W. Orchard, Senior Assistant, Director of Acquisitions, B.T.C., and a Vice-President of the Association.

Proceedings were opened on July 9 by Mr. Sherrington, who conveyed Mr. Blee's apologies for his absence and his good wishes for the success of the convention. Mr. Sherrington welcomed Mr. A. H. Shorter, of the Department of Geography at the University, who was to read a paper on "The South-West of England—the geographical background of the occupations of the people," and through him thanked the University for its assistance. Also present at the opening proceedings were Messrs. N. L. Collins, District Traffic Superintendent, British Railways, Southern Region, Exeter, and D. H. Hawkeswood, District Commercial Superintendent, Western Region, Exeter.

Geography of South-West

Mr. Shorter, in his paper, referred to the geographical peculiarities of the peninsula of Devon and Cornwall, the dispersed arrangement of settlements and the problem of supplies thereto, the diversity of farming, and the lack of large-scale heavy industries. There were now only three or four Cornish tin mines working but the china and ball clay industries were thriving. He mentioned that Plymouth, with a population of about 210,000, was the only really large town in the South-West. Exeter, with the second largest population (76,000), was the administrative centre of Devon and a "capital" rather than a "national" town such as Plymouth. It had been influenced by the growth of road and rail traffic, particularly in relation to the tourist trade, which was now comparable only with agriculture in the area's economy.

Inspection of Meldon Quarry

In the afternoon, a visit was made to the British Railways stone quarry at Meldon, near Okehampton, which, with all the other Southern Region visits, was authorised by Mr. C. P. Hopkins, Chief Regional Manager, and a Past-President of the Association.

The members of the party were conducted over the quarry by Dr. Dearman, Assistant Quarry Manager, and Mr. E. H. Wood, Works Manager. Secondary blasting, carried out three times a day to break up stone dislodged by a main blast but too large to be handled, was observed.

The main level of the quarry stands at a height of 860 ft. above sea-level. A second level, at 950 ft., has been developed, from which a hopper has been hewn out of the solid rock to load the stone on to a conveyor belt through a 300-ft. tunnel to the crusher. Large steel pans, lifted by five-ton mobile cranes, are used to load special lorries, which run to the hopper or direct to the crushers.

There are two electrically-driven crushing plants at Meldon, each capable of dealing with 70 to 75 tons of broken stone an hour. The stone passes through a gyratory crusher, and then by bucket elevators and conveyor belts through selection screens to the storage hoppers above the railway sidings, for loading by gravity. About 65 per cent of the stone quarried becomes standard track ballast, and most of the remainder is taken away separately for other railway uses.

During the same evening, members were received at Guildhall by the Mayor of Exeter, Alderman C. W. H. Hill. Mr. Sherrington expressed appreciation of the welcome received in the historic city of Exeter.

West Country Traffic Problems

On July 10, Mr. Hawkeswood presented a paper entitled "The practical traffic problems of the West Country." In his introduction he pointed out that railway operating problems in the West Country were characterised by the many steep gradients, necessitating banking in many cases, the large amount of single-line track, and the total late running caused on branch feeder lines when a down express was behind time. There was an appreciable difference in freight working between winter and summer; on summer weekends passenger occupation of the line was such that freight had to be almost wholly suspended on Saturdays and the timetable regrouped to provide additional Sunday clearances. The West Country was a "receiving" area—appreciably more inwards loaded wagons were received than forwarded; the proportion was roughly five to three.

Mr. Hawkeswood mentioned some of the more important types of freight, and difficulties encountered in handling them. The largest problem of all, however, in the Exeter district at least, was the intensified passenger train working during the summer months, when everything else had to take a back seat. On a typical Saturday during 1953, 26 passenger trains used St. Davids Station between 12.5 p.m. and 1.13 p.m., for instance, of which only nine ran through without a scheduled stop. In the Torbay area a "block reservation scheme" had been introduced under which passengers travelling by Saturdays only expresses to London and the North required to be in possession of a special (free) ticket entitling them to a seat on one of the 27 or so trains involved. Mr. Hawkeswood's paper, like that of Mr. Shorter the previous day, was followed by questions which gave rise to a lively discussion.

Visit to Plymouth Docks

On Monday, July 12, an inspection of Great Western Docks, Millbay, Plymouth, and a cruise through the Hamoaze as far as the Royal Albert Bridge, Saltash, was made under the guidance of Mr. L. J. L. Lean, Docks Manager. The Inner Basin and Dry Dock cover an area of some 14 acres, and are capable of receiving vessels up to 10,000 tons deadweight. During the war, considerable devastation was caused, and two-thirds of the covered warehouse area was destroyed. The party saw the transit shed replacements, and also passed the large grain silo erected by Spillers Limited which is a landmark for many miles around. The hydraulic cranes at Millbay are soon to be replaced by electric cranes, and the Dry Dock pumping station electrified.

On returning to the passenger terminal in the outer harbour, at the end of the cruise aboard the tender *Sir Richard Grenville*, the party followed a similar procedure to that of ocean passengers. The reconstructed waiting room, with its service kiosks, the baggage examination halls, and the modern personal search rooms were seen.

All passengers' luggage is handled alphabetically from the tender through the buildings to the special trains run from adjacent lines. Some 800 passengers or, say, 5,000 bags of mail, can be transshipped from ocean liners by each of the two British Railways tenders on station at Plymouth.

Exmouth Junction Concrete Works

The concrete works and the motive power depot at Exmouth Junction, Southern Region, were visited on July 13. Members were received by Messrs. A. H. Matson, Works Manager, and A. W. Johnston, District Motive Power Superintendent, respectively.

The greater part of the concrete works production at present goes to the Southern Region. In addition to Divisional Engineers' routine requirements, the London area ten-car suburban train and electric current conversion schemes have caused large orders recently, including sections for platform extensions and 1¼ miles of troughing a week. The majority of items are covered in a standard catalogue (659 designs) of bridges, concrete piles, buffer stops, drainage and cable channels, fencing, walls, colour-light signal gantries, mile and gradient posts, traders' and many other types of huts, and other equipment. Some 500,000 items were completed at the works in 1953. Platelayers' huts are despatched complete with furniture also made at Exmouth Junction.

There is a total staff of about 150 at the concrete works; most of the work is done by hand as there is generally little scope for mechanisation. The party was shown the cement silo, concrete mixers, wood machine and metalwork shops, fitters' shop, and the method of making the steel reinforcements and assembling the wooden moulds, with steel working faces. To handle the items that cannot be moved by hand, a ten-ton crane is allocated to the works; for heavier loads the motive power depot crane is used.

Works Visit

The convention closed with a visit to the works of John Heathcoat & Co. Ltd. at Tiverton, which was founded there during industrial troubles in the Midlands last century, and now exports silk, rayon, nylon, cotton, satin and other materials to many countries. The party saw the preparation of the thread and setting of the looms, and the various methods of bleaching, dyeing, and other processes.

Modernisation in Southern Spain

Of the $85,000,000 which Spain is to receive within the framework of the American aid programme for the American 1953-1954 fiscal year, $11,000,000 will be allocated to railway modernisation. To begin with, work is to be undertaken in the Cadiz and Seville areas in which the Americans will establish two out of the four air bases agreed on with Spain. One will be near El Copero, five miles from Seville, and one near Morón de la Frontera, 30½ miles south-east of Seville. Morón de la Frontera is the terminus of a 12-mile branch from Trinidad, on the Seville-Utrera-Bobadilla line.

The U.S. Navy is to develop the port of Rota as its naval base in Spain. Rota is on the northern shore of Cadiz Bay, opposite Cadiz, and is connected by railway with Puerto de Santa Maria on the Seville-Utrera-Jerez de la Frontera-Cadiz main line, 21¾ miles to the north of Cadiz.

In connection with the establishment of these American bases, the $11,000,000 credit is first to cover the modernisation of the railways serving these American centres. Of the Madrid-Córdoba-Seville-Cadiz main line (451½ route-miles) the Madrid-Córdoba section (274 route-miles) is already being modernised, so that the first item further south is to be the Seville-Cadiz section, 95 miles long. The Utrera-Trinidad-Morón de la Frontera branch, and the Rota-Puerto de Santa Maria line are to be relaid as they were built about 60 years ago, and still have their original light rails.

Some 30,000 tons of steel rails will be required for the modernisation of these strategic lines. Half of that quantity will be supplied from America, and the remainder is to be manufactured in Spain with materials to be supplied by America. The United States is also to supply the whole of the 800,000 sleepers needed, as well as all complementary equipment. Fourteen 1,600 h.p. diesel-electric locomotives are to be placed in service in the Seville-Cadiz area, and the Spanish wagon industry will receive about 1,000 tons of sheet steel for the construction of all-steel high-capacity wagons which will be used on the modernised lines.

In addition, the Spanish National Railways will spend some 320,000,000 pesetas on installing the material, laying the tracks and so on. It is believed that the State will sell to the railway for pesetas the railway material it will receive from America, and will place the amounts concerned at the disposal of the railways, which will then use them for the execution of the work.

B.T.C. Display at the Production Exhibition

The British Transport Commission stand at the Production Exhibition, Olympia, London, W.14, was designed by Mr. Robert Ingles, in consultation with Mr. Mischa Black, of Design Research Unit, to the requirements of Mr. J. H. Brebner, Chief Public Relations & Publicity Officer of the Commission; the contractors were F. W. Clifford Limited, and the animated displays were by Synchrophone Limited.

The purpose of the exhibit was to publicise facilities offered by British Railways and British Road Services and to stress the advantages of bulk conveyance; the stand was staffed by employees with experience in methods of freight transport by rail and road.

Display on Vertical Screens

The display matter was arranged on four vertical screens, staggered for easy circulation. One screen showed how economy can be achieved by loading railway and road vehicles to their maximum capacity; a second screen illustrated the advantage of reducing standing time; the third showed the benefit of canalising traffic by road, and the fourth the special wagons being built for particular types of rail traffic. Animated diagrams emphasised the advantages of avoiding "peaks" and balancing traffic in each direction.

Pathways of waxed deal duckboards were laid between the screens, and the remaining floor space, except for a small carpeted reception area, was filled with granite chips with rock plants. The ceiling of the reception area was of deal slats, and the remainder of white cotton laid over diagonal bracing wires. Strong colour was confined to the large bracing panels (scarlet, lemon, and blue) and the display panels, the remaining materials being neutral in colour. Each of the display panels was lit by a group of four 100-W. lamps in reflectors painted alternately black and white.

American Tribute to British Railways

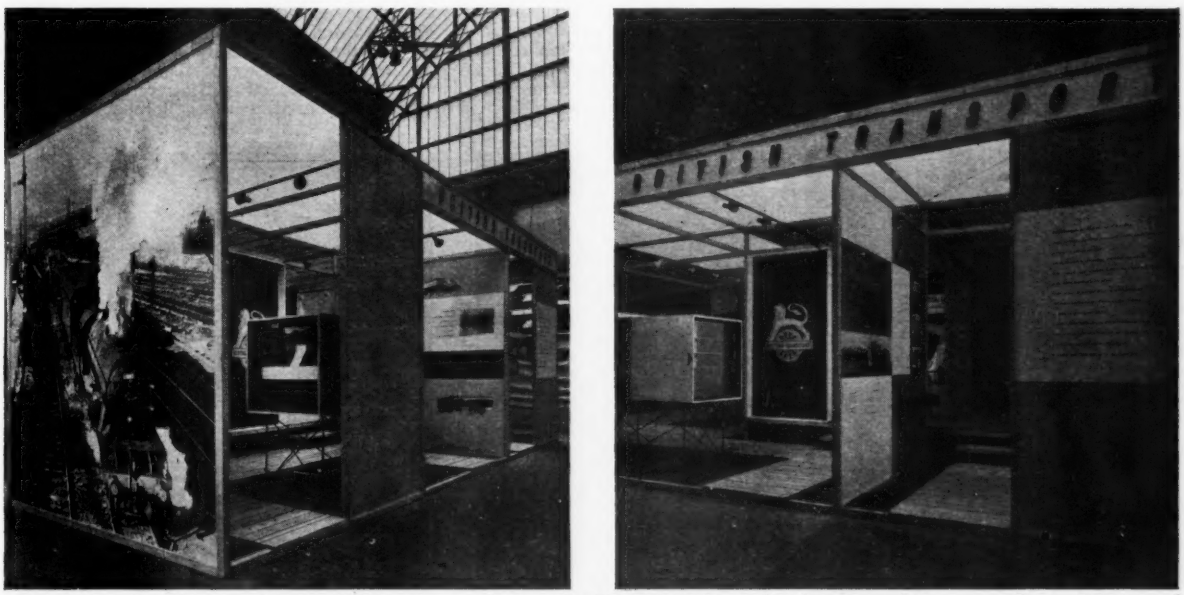
An unsolicited letter thanking British Railways for the personal services rendered to an American County Judge during a journey from Plymouth to Glasgow has been received by the British Transport Commission. The text of the letter is given below:—

"May an American from Alabama intrude upon your busy day to praise British Railways and the men who operate them?

"This is based on our experience after landing at Plymouth from the good ship *Halia*, Saturday, July 10. We were supposed to land in the morning, but the ship was delayed by fog and did not arrive until about noon, and after immigration and customs it was almost 4 p.m. when we left by special boat train.

"Your New York representative had booked my family of four on the 9.10 p.m. train from Euston to Glasgow, feeling that we would arrive in London in ample time.

"As it happened, our boat train did not arrive at Paddington until about 9.30 p.m. and your conductor on that train was even more worried about our missing our Glasgow connection than we; he had special



B.T.C. Stand at Olympia showing (left) enlarged photograph of British Railways freight train and (in centre of picture) animated diagram of pipeline with junction showing that movement cannot be stored to serve peak demand. (Right) Animated diagram illustrating balanced traffic and (on right of picture) illustrations of British Railways locomotives

porters find our luggage quickly from the huge pile and had a porter get us a taxi quickly to rush to Euston. The conductor further told us to see the stationmaster at Euston and explain our predicament and that the boat train was late.

"The stationmaster at Euston was just as courteous and helpful as the conductor, and had a man see about getting us berths on the 11.30 train to Glasgow, and at this late minute secured us a four-berth third class compartment (we had two new type two-berth third class for the 9.10 but there were no new type available for the 11.30). The stationmaster also secured a man to place a phone call to our hotel to inform them of our delay.

"Then, next in order, the man who sold us our sleeping berths was even more helpful. When I told him that we preferred the new type berths he went all the way to the train and sleeping car with us to see whether he could make any special arrangements for sheets for the four-berth compartment, and although he could not do so his attention and worry for us more than made up for the lack of sheets.

"As we had more baggage than we could easily handle in our compartment and did not need one bag, he even offered to take one of our bags and leave it for us at the hotel in London where we have reservations beginning August 8 and this trouble and kindness on his part was above the call of duty and certainly helped us.

"I do not know the names of this train conductor or this sleeping berth agent, but I hope that you can check their names and express our thanks and appreciation to them and place a good mark after their names on your record. The Euston stationmanager also gave us full directions for securing refund on our unused sleeper tickets, and also the Glasgow station agent on our arrival there was most courteous in telling them to send in for us.

"Now you see why I like British Railways, its employees and the inhabitants of the British Isles. Good luck to you!

"This is may first visit to Europe. I am one of the four official American delegates to the International Congress of Juvenile Court Judges at Brussels on July 15-19."

Sir John Elliot's Visit to Metropolitan Line

Continuing his general tour of the London Transport system, Sir John Elliot, Chairman of the London Transport Executive, on July 13 visited outer suburban areas served by the Metropolitan Line. He was accompanied by Mr. F. G. Maxwell, Operating Manager, Railways; Mr. A. W. Manser, Chief Mechanical Engineer, Railways; Mr. H. T. Hutchings, General Superintendent (Traffic) Railways; Mr. H. Carter, New Works Engineer; Mr. A. C. Edrich, Assistant Civil Engineer, Permanent Way; and Mr. W. Cowan, Assistant Divisional Superintendent, London Transport.

New Works Inspected

Starting at Harrow-on-the-Hill, where he inspected the station premises and the master signal cabin which also controls the cabins north and south of the station, Sir John Elliot travelled by train to Pinner to see the station premises and two recently reconstructed bridges, and thence to Watford and Rickmansworth. At Rickmansworth, after inspecting the station premises and the new signal cabin installed in connection with the recent substitution of electro-pneumatic for mechanical signalling, he watched the locomotive changeover from electric to steam. From Rickmansworth, the party went on to the Chesham branch and then to Aylesbury.

During the course of his tour, he visited various stations and installations and met members of the staff.

Parliamentary Notes

British Transport Commission Order Confirmation Bill

Mr. James Stuart (Secretary of State for Scotland) presented to the House of Commons on July 5 the British Transport Commission Order Confirmation Bill, the object of which is to confirm a Provisional Order under the Private Legislation Procedure (Scotland) Act, 1936, relating to the British Transport Commission.

The Bill passed the Report stage on July 6, and was passed on July 7.

Railway Reorganisation

After Captain Harry Crookshank (Lord Privy Seal) had announced in the House of Commons on July 15 the business for the week commencing July 19, Mr. Ernest Davies (Enfield East—Lab.) asked if he could say whether two transport matters were to come up in the House before the adjournment for the Recess, namely, a debate on the railway reorganisation scheme: and secondly, on the Highway Code, which they were still awaiting.

Captain Crookshank replied that the Government undertook to publish a White Paper on the railway scheme containing the proposals before seeking the approval which would ultimately be necessary on an Affirmative Resolution. It would be desirable for the House to take some time to study those problems, and the Government would find time when they resumed the Session later in the year. The position with regard to the Highway Code was similar.

Questions in Parliament

Traffic Receipts

Mr. David Jones (Hartlepools—Lab.) on July 7 wanted to know the net traffic receipts for British Railways for the year 1953, and the net traffic receipts for British Road Services for the year 1953.

Mr. Alan Lennox-Boyd (Minister of Transport & Civil Aviation) replied: These and other figures will be contained in the B.T.C.'s annual report which will be laid before the House as soon as it is printed.

Mr. Jones asked when the report would be available.

Mr. Lennox-Boyd replied that owing to preoccupation with the railway reorganisation scheme and the merchandise charges scheme, the Commission regretted that the report would be issued a little later this year than in the last few years.

Smoke Pollution

Mr. Kenneth Robinson (St. Pancras North—Lab.) on July 7 wanted to know why the Minister of Transport & Civil Aviation had refused to receive a deputation from St. Pancras Borough Council

At Rickmansworth: (left) arrival of Sir John Elliot, accompanied by Mr. F. G. Maxwell, Operating Manager (Railways); (centre) with Mr. G. Markham, Stationmaster; (right) in the signalbox

to discuss the question of authorisation of additional capital required by the British Transport Commission to deal with smoke pollution at Chalk Farm.

Mr. Alan Lennox-Boyd replied: I am sorry about conditions at Chalk Farm. I know that St. Pancras Public Health Committee have had a very full discussion of the problem with a senior railway officer and the B.T.C. have promised to do all they can to reduce smoke and grit. The Council raised the question of electrification of the whole railway system out of Euston. I do not think it would help to receive a deputation from them about this. I would be very ready to discuss the problem with the Members concerned. Later he said that the question of the electrification of the whole of the former London, Midland & Scottish system was not one that could properly be discussed by the Minister with a local authority.

Continental Day Trips

Mr. Howard Johnson (Brighton Kemptown—C.) on July 15 asked the Chancellor of the Exchequer why day trippers from Newhaven to Dieppe or Boulogne travelling by private enterprise pleasure steamers were to be refused the Customs concessions given to persons who travelled from Newhaven to Dieppe or Boulogne on 24-hour trips organised by British Railways; and whether he would take immediate steps to ensure that such day trippers were granted similar Customs concessions.

Mr. J. A. Boyd-Carpenter (Financial Secretary to the Treasury) in a written reply stated that day trippers were not entitled to the Customs concessions made to foreign tourists and British nationals returning from abroad. There was no discrimination between one kind of service and another.

Staff & Labour Matters

Railway Wages

Steady progress was reported to have been made in the resumed wage negotiations in London on Tuesday between representatives of the B.T.C. and the leaders of the N.U.R. Mr. J. S. Campbell, General Secretary of the N.U.R., said that the plan for the wages structure was now nearly completed.

Officials of the A.S.L.E.F. were due to meet the Commission on Thursday to discuss the pay rates for engine crews. Next Tuesday the Commission is to have another meeting with the T.S.S.A. Later, if sufficient progress is made in these talks, all three unions will meet to settle the final wages structure.

WAGON REPAIRS LIMITED RESULTS.—The directors of Wagon Repairs Limited have declared a second interim dividend of 10 per cent, to be paid as a final, on the ordinary capital of £705,344 for the year ended March 31, 1954. This follows an interim dividend of 10 per cent on the former capital of £529,008 before being increased by a 33⅓ per cent scrip issue. For the previous year a total dividend of 20 per cent was paid, plus a special distribution of 3⅓ per cent from capital surplus. The consolidated profits amounted to £560,667 (£550,773) and net profits £183,718 (£162,454) after tax of £376,949 (£388,319). The parent company's net profit was £182,128.

Contracts & Tenders

An order for 200 triangulated wagon underframes has been placed by Coras Iompair Eireann with the Metropolitan-Cammell Carriage & Wagon Co. Ltd.

The Canadian National Railways have placed a $492,000 order with the Canadian Car & Foundry Company, Montreal, for five 50-passenger all-steel first class coaches and one sleeping car containing eight sections and one drawing room.

The Belgian National Railways have placed orders totalling 75 diesel shunting locomotives of 550 b.h.p. with the S. A. John Cockerill, S. A. Baume & Marpent S.A., and the S.A. Energie. An order for 15 diesel-shunting locomotives of 750 b.h.p. has also been placed with the Les Ateliers Metallurgiques, S.A., Nivelles & Tubize. A variety of Belgian oil engines will be used, but all 90 locomotives are to have the Voith form of hydraulic transmission.

Krauss-Maffei A.G., of München-Allach, is building 13 single-phase electric locomotives of Bo-Bo type and 30 tons axle load for the Rheinische Braunkohlen A.G. These locomotives are of 2,000 h.p. These are to the same design as other locomotives for the same customer being built by Henschel and Krupp. A further rectifier type of locomotive is also being constructed by Krauss-Maffei to give comparative performance data.

British Railways, Eastern Region, has placed the undermentioned contracts:—

Caffin & Co. Ltd., London, W.C.2: reconstruction of east abutment and south-east wing wall of underline bridge between Canning Town and Pepper Warehouse over River Lea at Bow Creek

Durafencing (Northern) Limited, Manchester 3: part supply and complete erection of lineside fencing in the Peterborough District

The following contracts have been placed by British Railways, Scottish Region:—

Thos. Cooper & Co. (Builders) Ltd., Glasgow: demolition of roof of blacksmith's and fitting shops at Cowlairs Works, Glasgow; provision of drainage system and foundations for new steel-framed building

Clyde Structural Iron Co. Ltd., Glasgow: steel-framed building and roof glazing for new blacksmith's and fitting shops at Cowlairs Works, Glasgow

Whatlings Limited, Glasgow: concentration of staff accommodation at Dunfermline Upper station

J. Laidlaw & Sons Ltd., Rutherglen: adaptation of premises as office accommodation at 45, Hope Street, Glasgow

Industrial Engineering Limited, Glasgow: construction of continuous transverse roof smoke vents at Eastfield Depot, Glasgow

I. Tait, Edinburgh: foundations for 70 ft. locomotive turntable at Oakley Marshalling Yard, Fife

The Great Northern Railway Board, Ireland, is enquiring for diesel locomotives of three types: (*a*) a six-wheel shunter and freight transfer locomotive of 350/400 b.h.p.; (*b*) an eight-wheel rigid frame design of 800 b.h.p.; and (*c*) a double-bogie type of 1,000 b.h.p. In each case one locomotive is required at first; but subsequent locomotives are to be built by the Board's Dundalk works in collaboration with the successful tenderer.

The Special Register Information Service, Export Services Branch, Board of Trade, reports that the Egyptian Republic Railways are calling for tenders (Specification No. 710), for 40, or 70, or 100 third class bogie coaches. The closing date for the receipt of tenders is September 27, and suppliers on the Egyptian Railways official list can obtain a copy of the specification (No. 710) against a cash payment in advance of £E5 to the Mechanical Department, Egyptian Republic Railways, Saptieh, Cairo.

The Special Register Information Service, Export Service Branch, Board of Trade, reports that the Special Financial Committee on the Construction of the Corumba-Santa Cruz Railway, by order of the Government of Bolivia, is calling for tenders for the supply of the following rail equipment:—

Ten open goods wagons with automatic unloading devices for the transport of stone
Ten closed wagons for transport of goods
Six tank wagons
One first-class coach
Two second-class coaches
One dining car
Two diesel-electric locomotives
Two light inspection cars

The closing date for the receipt of tenders is September 30, at the Department of Economic Policy in the Ministry of Foreign Affairs, La Paz, and September 15 in the Palacio de Itamaraty, Rio de Janeiro.

The prices tendered shall be shown c.i.f. Santos. Where tenders deal with material manufactured in Brazil, the prices indicated may be f.o.b. the factory. Interested firms may obtain full specifications from the Directorate-General of Railways in the Ministry of Public Works.

The Director General of Supplies & Disposals, New Delhi, is inviting tenders as follows:—

(*a*) 101 axleboxes, bronze, coupled wheel, for BESA locomotives

(*b*) 1,974 brake cylinder carriers (m.g.); 3,948 brake beam hanger brackets (m.g.); 3,948 brake beam hangers (m.g.)

(*c*) 185 hand basins, corner type, upper class toilets; 129 lavatories, stainless steel, flushing, for lower class

(*d*) 61 right-hand and 61 left-hand jackshaft gear (wheel) rims, for electric freight locomotives

Tenders, quoting the following references: (*a*) SRI/17424—D/IV; (*b*) SRI/16185—E/II; (*c*) SRI/16551—E/I; (*d*) SRI/16477—E/II; will be received up to 10 a.m. on: (*a*) August 5; (*b*) August 20; (*c*) August 11; (*d*) August 17.

Forms of tender are available for purchase in India only from the Deputy Director General (Supplies), Directorate General of Supplies & Disposals, New Delhi; Director of Supplies & Disposals, Bombay or Calcutta; or Deputy Director of Supplies & Disposals, Madras.

If the date for the receipt of tenders does not allow sufficient time for tenderers to obtain tender forms from India, they may submit their quotation to India in their own letter form or by telegram so long as all essential particulars are given and provided they simultaneously apply for the tender forms and return them duly completed as quickly as possible on the basis of advance quotations already submitted.

A copy of the tender forms may be examined at the India Store Department, 32-44, Edgware Road, London, W.2, on application to the "CDN" branch. The drawings may be seen at the offices of Hodges Bennett & Company, 59-60, Petty France, London, S.W.1, from whom copies may be obtained.

XUM

Notes and News

Workshop Supervisor Required.—Applications are invited for the post of workshop supervisor (millwrights' shop) required for the Railway Department, Gold Coast Civil Service, for two tours of 15 to 18 months each. See Official Notices on page 111.

Assistant Engineer, Mechanical, Required.—Applications are invited for the post of assistant engineer, mechanical, between 25 and 35 years of age, required in the London Office of the Crown Agents for Oversea Governments and Administrations. See Official Notices on page 111.

Institute of Transport: Southern Africa Division.—Approval has been given for the formation of a Port Elizabeth District Section of the Southern Africa Division of the Institute of Transport. The new Section will bring the total in the Southern Africa Division to six, the others being Cape Peninsula, Durban, East London, Johannesburg, and Rhodesia.

British Railways Cafeteria-Restaurant Cars.—In the article describing British Railways new cafeteria-restaurant cars on pages 79 and 80 of our issue of July 16, it was stated that the ceilings were of ivory satin finish Formica. We have now been informed that the ceilings are actually of ivory satin finish Traffolyte, another product of Thomas De La Rue & Co. Ltd.

Aircraft Collides with Train.—A Venom two-seater jet aircraft which crashed on the de Havilland airfield at Broughton, near Chester, recently, hit the tender of a passing goods train as it came down. The train was carrying stone from Penmaenmawr to Frodsham. The engine driver and fireman, who threw themselves on the floor of the cab, were uninjured, except for slight burns from hot cinders. The pilot and observer of the aircraft were taken to hospital with head injuries and shock.

Sir Brian Robertson's Visit to Birmingham.—Sir Brian Robertson, Chairman of the British Transport Commission, accompanied by officers of the Commission, of British Railways, British Road Services, and Docks & Inland Waterways, visited Birmingham on July 9 and presided at an informal luncheon to prominent industrialists of Birmingham. He also visited various railway installations.

Vokes Limited, London Office.—The London office of Vokes Limited, the filtration and silencing engineers, is now at 123, Victoria Street, London, S.W.1.

Sales of Transport Units.—A further list of transport units for disposal has been issued by the British Transport Commission. The new list is known as "Special List No. S.1," and contains 45 units with premises, including a large unit of 200 vehicles at Littlemore, Oxford, and another of 89 vehicles at Thatcham, Berks. Tenders for these units must be received by 10 a.m. on September 15.

Eastern Region Railwaymen Mayors.—Mr. C. K. Bird, Chief Regional Manager, Eastern Region, was host at a recent luncheon at the Abercorn Rooms, Liverpool Street, attended by members of the Eastern Region staff holding civic office. The guests were the Mayor of Hertford, the Mayor of Shoreditch, the Deputy Mayor of Doncaster, the Deputy Mayor of Cambridge, and the Chairman of the Cromer Urban District Council. The luncheon was also attended by senior officers of the Eastern Region.

August Holiday Arrangements: Southern Region.—The Southern Region of British Railways is to run over 300 extra main line trains to the coast and the West of England during August Bank Holiday weekend, and some 80 additional boat trains to convey passengers to the Continent and Channel Islands. On Bank Holiday a special day excursion will run from Victoria to Folkestone, and a special ship will be used for the first time since the war to carry the excursionists to Boulogne. Passengers will leave Victoria at 9 a.m. and arrive back in London at 10.30 p.m., which gives 5½ hours in Boulogne. The fare will be 40s. from London and 25s. from Folkestone Harbour. Passports are necessary. Many extra trains will be run in connection with the race meeting at Epsom, and cheap tickets will be issued from London and all stations within 60 miles of Chatham and Portsmouth, where the Navy will be "at home" to visitors.

Ladmanlow Goods Depot to be Closed.—British Railways, London Midland Region, announce that Ladmanlow goods depot on the branch line from Hindlow will be closed, except for private sidings traffic, on and from August 2, 1954. Alternative arrangements have been made for dealing with freight train traffic.

International Mechanical Engineering Congress.—It has been decided not to hold the Sixth International Mechanical Engineering Congress until 1955, but in conjunction with the fourth European Machine Tool Exhibition a colloquium has been planned to take place at Stresa, Italy, from September 24 to 25. The sponsor of the International Mechanical Engineering Congress in Britain is the British Engineers' Association, 32, Victoria Street, London, S.W.1.

Wickman Limited Display at European Machine Tool Exhibition.—At the Fourth European Machine Tool Exhibition to be held in Milan from September 14 to 23, the Wickman exhibits will be a comprehensive selection of the firm's products. It will include a range of bar and chucking automatics, an optical profile grinding machine, a Webster & Bennett 36-in. boring and turning mill, with a series of Heenan machines, which will include ring coiling, strip joining and chain machines. Many of the machines will be demonstrated. A machine which will be exhibited for the first time is the Wickman Erodomatic model SM/2 kVa for the production of complex forms in hard materials, for blanking, extracting, coining, and drawing dies.

Eastern Region Bank Holiday Arrangements.—The Eastern Region is to run 311 additional main line trains during the August Bank Holiday period, including 83 on July 30 and 86 on August 2. The trains will be mainly to serve the West Riding of Yorkshire, Newcastle, Edinburgh and Aberdeen, as well as the principal towns in East Anglia, with others to London to cater for passengers spending the holiday in the capital. A number of cross-country services linking the more important provincial towns will be duplicated, and there will also be additional trains from Norwich and March to York and from Cambridge to Newcastle. Sleeping car, restaurant car, and buffet services will be augmented, and seat reservation facilities will be available in many relief trains.

Chloride Electrical Storage Co. Ltd., Meeting.—At the recent annual general meeting of the Chloride Electrical Storage Co. Ltd., Mr. A. W. Browne, the chairman, presided. In his circulated statement the chairman said that there was a steady and marked improvement during the year in sales, which started at an unfavourable level. The volume of business for the year was only slightly less than in 1952. The use of battery locomotives for underground haulage continued to expand, and was proving a serious competitor to the diesel locomotive since it was cheaper in first cost and maintenance. The total volume of export business was well maintained, but difficulties of import restrictions and exchange were compelling the

Sir Brian Robertson, at Lawley Street, L.M.R. On his right is Mr. R. P. Davis, District Goods Superintendent, Birmingham, and on his left Mr. J. W. Watkins, Chief Regional Manager, London Midland Region. Mr. H. E. Hipkiss, Goods Agent, Lawley Street, is second from right

OFFICIAL NOTICES

The engagement of persons answering Situations Vacant advertisements must be made through a Local Office of the Ministry of Labour or a Scheduled Employment Agency if the applicant is a man aged 18-64 inclusive or a woman aged 18-59 inclusive unless he or she, or the employment, is excepted from the provisions of the Notification of Vacancies Order, 1952.

MECHANICAL INSPECTOR (LOCOMOTIVES) required by the EAST AFRICAN RAILWAYS AND HARBOURS ADMINISTRATION for one tour of 40/48 months with prospect of permanency. Salary scale (including present temporary allowance of 35 per cent of salary) £1,039 rising to £1,093 a year. Older candidates may be considered for temporary appointment on contract for one tour only at a consolidated salary of £1,250 a year with gratuity of 10 per cent of total salary drawn during contract. Except for a contract appointment free quarters are provided and an outfit allowance of £30 is payable. Free passages. Liberal leave on full salary. Candidates should have served a full apprenticeship, and have an exceptionally sound practical knowledge of running and shed matters coupled with considerable administrative ability. Write to the Crown Agents, 4, Millbank, London, S.W.1. State age, name in block letters full qualifications and experience and quote M2A/40316/RA. Applicants now serving with British Railways would be eligible for secondment and should apply through their local officers.

ASSISTANT ENGINEER (MECHANICAL) required for their London Office by the CROWN AGENTS for Oversea Governments and Administrations. Basic salary scale £650 × £25 to £750 × £30 to £960 × £40 to £1,000 a year plus extra duty allowance of approximately 8 per cent. The £650 minimum is linked to entry at age 25 and is subject to increase at the rate of one increment for each year above that age up to 34. Fully qualified officers at least 27 years old may be eligible for a special increase of £75 after two years' service. Engagement is on unestablished terms with prospect of appointment to the established staff and of promotion. Candidates between 25 and 35 years of age should have passed the qualifying examination for Associate Membership of the Institution of Mechanical Engineers or equivalent examination. They should have served an apprenticeship or pupilage in the Locomotive or Rolling Stock Department of British Railways or with a firm of locomotive or rolling stock builders, or with a firm specialising in the manufacture of Wharf or break-down cranes. They should also have subsequent drawing office experience in the design of locomotives or carriages and wagons and diesel railcars or cranes, together with a normal knowledge of modern workshop practice. Write to the Crown Agents, 4, Millbank, London, S.W.1. State age, name in block letters, full qualifications and experience and quote M2A/30691/RA.

WANTED. *Diesel Railway Traction*, July, 1951, issue to complete volume of U.S.A. reader. Offers to Box 291, *The Railway Gazette*, 33, Tothill Street, London, S.W.1.

WORKSHOP SUPERVISOR (MILLWRIGHTS SHOP) required for the RAILWAY DEPARTMENT GOLD COAST LOCAL CIVIL SERVICE for 2 tours of 15/18 months each. Consolidated salary in scale £990 rising to £1,230 a year. Outfit allowance £60. Gratuity at the rate of £100/£150 a year. Free passages. Liberal leave on full salary. Candidates must have served an apprenticeship as a Millwright in a Railway or heavy engineering workshop and have had at least 3 years subsequent experience. They must be conversant with repair and maintenance of machine tools, line shafting, steam water pumps, and the care and maintenance of hydraulic plant and steam and electric cranes. Write to the Crown Agents, 4, Millbank, London, S.W.1. State age, name in block letters, full qualifications and experience and quote M2C/30412/RA.

SALES ENGINEER required for Company marketing diesel trains and trolley buses. Should have some technical training particularly with regard to diesel engines and transmissions. Commercial experience an asset, salary dependent upon experience. Box 295, *The Railway Gazette*, 33 Tothill Street, London, S.W.1.

BOUND VOLUMES.—We can arrange for readers' copies to be bound in full cloth at a charge of 25*s.* per volume, post free. Send your copies to the SUBSCRIPTION DEPARTMENT, Tothill Press, Limited, 33, Tothill Street, London, S.W.1.

expansion of the company's overseas manufacturing units. Export orders improved towards the end of the year, particularly for train lighting and batteries for use on diesel locomotives. During the year a controlling interest was acquired in the Hart Battery Company of Montreal, Canada. Plant in factories at home and overseas had been replaced and modernised. Increasing competition, particularly from Germany and Japan, made it essential to reduce costs of production and distribution. Order books were well filled and provided that conditions remained reasonably stable, 1954 should show satisfactory results.

Road Haulage Unit Sales.—The Road Haulage Disposal Board and the British Transport Commission announced on July 14 that the latest position in regard to the disposal of transport units offered for sale in List No. R.3, which was advertised on May 19, 1954, was then that the highest tenders had been accepted for 52 units (152 vehicles), all tenders had been rejected for 29 units (130 vehicles), no bids were received for 16 units (71 vehicles), and no decision had been reached on 11 units (35 vehicles).

Pig Iron and Steel Production in June.—Steel production in June averaged 371,700 tons a week. This is the highest figure ever achieved for the month of June, but is slightly below the May figure of 374,500 tons a week, since the Whitsuntide holidays affected production in some districts. The production of steel for the half year has been at an average rate of 366,300 tons a week, equal to an annual rate of 19,048,000 tons. Pig iron production in June reached the record rate of 233,200 tons a week, equivalent to an annual rate of 12,129,000 tons, and the half yearly average 230,100 tons a week, the equivalent of an annual rate of 11,964,000 tons.

Scottish Machine Tool Corporation Limited Meeting.—In his recently circulated statement to shareholders of the Scottish Machine Tool Corporation Limited, Mr. Douglas Sharp, the Chairman, said that the shortage of skilled labour coupled with increasing competition presented a problem to the industry. The good results for the year ended March 31, 1954, had been obtained in the execution of orders received under more favourable conditions than those now existing. The chief hope of maintaining the position lay in the continued development of new designs and in increased production of first quality. In the meantime, orders stood at a high level. At the annual meeting, held in Glasgow, the report and accounts were adopted.

Withdrawal of Woodhall Junction-Horncastle Passenger Service.—On and from September 13, 1954, the passenger service will be withdrawn from the Woodhall Junction-Horncastle branch. There is an intermediate station at Woodhall Spa.

Brazilian Traction, Light & Power Co. Ltd.—In his report to the annual meeting of the Brazilian Traction, Light & Power Co. Ltd., which was held in Toronto recently, the President, Mr. Henry Borden, said that the loan of $18,790,000 from the International Bank of Reconstruction & Development for financing the foreign currency cost of the Piratininga steam-electric plant became formally effective on June 8. The first unit of the plant should be in operation shortly and the second before the end of the year. There was need to raise funds in Brazil to enable the companies to meet the construction burden resulting from the phenominal growth of business. The proposed Eletrobras plan for Brazilian national electrification was based on sound principles. The company had received excellent co-operation from the Brazilian authorities.

Vickers Limited: Interim Dividends.—The directors of Vickers Limited have announced interim dividends of 2½ per cent, less tax, on the preferred 5 per cent stock and 5 per cent preference stock. On the cumulative preference stock an interim dividend of £2 2s. 6d. net per £100 stock will be paid. This represents a dividend of 2½ per cent less income tax at 3s. in the £

"Shakespeare Country" Display

A window display unit of the Western Region advertising conducted rail and road day tours from Paddington to the Shakespeare Country

and is equivalent to a gross amount of £3 17s. 3d. less tax at 9s. in the £. The Inland Revenue has agreed on double taxation relief for all years up to and including 1953/54, making the U.K. rates of tax on these stocks 8s. 1·88d., 8s. 1·88d., and 8s. 1·79d., respectively. Tax is deductible by the company at the full standard rate of 9s., but the rates at which relief or repayment may be allowed to stockholders is limited to the net U.K. rate. Payment will be made on August 20.

Edgar Allen & Co. Ltd. Results.—The directors of Edgar Allen & Co. Ltd. propose an ordinary dividend of 20 per cent for the year ended April 3, 1954, compared with 15 per cent, including a bonus of 5 per cent, for the previous year. Group net profits were £246,361 (£265,199) after tax of £292,944 (£403,861) and special credits of £6,440 (nil). The directors report that although turnover has been maintained, increased costs of materials and labour, reduction in selling prices, and changes in the incidence of demand for the company's products have combined to reduce the overall ratio of profit earned.

Sentinel (Shrewsbury) Limited.—The trading balance of Sentinel (Shrewsbury) Limited, for the year to March 31, 1954, was £121,444, compared with £164,505 in the previous year. After the deduction of cancellation charges, amounts written off stocks and work in progress, amounting to £222,805 (nil), depreciation of £38,449 (£40,126), tax nil (£61,229), and other items there was a net loss of £177,437 (profit £36,102). The ordinary dividend is nil (5 per cent), and £50,469 is carried forward, including £64,437 tax recoverable (£166,439). Current assets are £1,551,647 (£1,758,943), including stock £1,052,163 (£1,515,425). Current liabilities are £245,906 (£267,653). The annual meeting will be held in London on July 27.

Sheffield Twist Drill & Steel Co. Ltd.—Chairman's Statement.—In his circulated statement, Mr. Alexander Dormer, Chairman & Managing Director of the Sheffield Twist Drill & Steel Co. Ltd., says that heavy stocking by manufacturers and merchants led to a reduction in demand for the company's products in 1953. The flexibility of the company was, however, such that it was able to undertake subcontract work and keep all employees fully occupied. Export sales remain difficult and the Government could help by including the company's products in bi-lateral trade negotiations. A milling cutter manufacturing business was purchased during the year under review. The company is in a strong financial position and there has been a slight increase in the demand for its products this year. The report and accounts were adopted at the annual meeting in Sheffield and payment of a final dividend of 1s. 4d. a unit, making 2s. a unit for the year, was approved.

Forestal Land, Timber, & Railways Co. Ltd. Dividends.—A final ordinary dividend of 9 per cent for the year 1953 has been recommended by the board of Forestal Land, Timber & Railways Co., Ltd., making a total of 12 per cent for the year. These are the same as in 1952, but are payable on capital increased by a 25 per cent capitalisation of reserves. The distribution takes £305,979 compared with £242,001 in 1952. Consolidated profit (excluding Argentina) was £918,496 (£1,142,117). With £263,054 (£300,000) from general reserve and balance brought forward a sum of £1,302,634 (£1,529,266) is available. £476,411 of this goes to reserves (£1,107,407). The parent company's profit amounts to £394,982 (£37,755) before deducting tax of £263,712 (£31,400). Total disposable is £415,096 (£321,547). A sum of £48,244 (£20,772) is carried forward. Consolidated profit of the Argentine group amounted to 14,162,068 pesos (23,564,129 pesos). Contingency provision is 21,671,483 pesos (nil). Dividends take 6,383,702 pesos (6,187,211 pesos), and reserve transfers 8,263,792 pesos (8,452,103 pesos).

Firth Brown Tools Limited.—The group trading profit of Firth Brown Tools Limited for the year ended March 31 last was £267,357, compared with £468,548 in the previous year. This figure was after charging depreciation and so on, but before taxation. With miscellaneous income, total profit was £271,172 (£455,567). Taxation required £147,881 (£300,851), leaving a net profit of £123,291 (£154,716). The ordinary dividend remains unchanged at 12½ per cent, and, with the preference dividend, absorbs £80,785 (£80,285). Allocation to contingencies reserve is nil (£50,000), and a balance of £164,812 is carried forward, compared with £122,306 brought in. Consolidated current assets were £1,355,000 (£1,946,000) and current liabilities £362,000 (£754,000).

Forthcoming Meetings

July 28 (*Wed.*).—Permanent Way Institution, London Section. Visit to "Ciment Fondu" works of La Farge Aluminous Cement Co. Ltd., at West Thurrock, Essex.

August 18 (*Wed.*) to August 28 (*Sat.*).—"The Model Engineer" Exhibition at the New Horticultural Hall, London, S.W.1.

Until September 25 (*Sat.*).—"Popular Carriage" Exhibition (Two centuries of carriage design for road and rail) in the Shareholders' Meeting Room, Euston Station, London, N.W.1. Weekdays 10 a.m. to 7 p.m.; Sundays 2 to 7 p.m.

Railway Stock Market

After their further big advance last week in which strength of British Funds was outstanding, there was a little profit-taking in stock markets on Monday, but with the beginning of the new Stock Exchange account, the upward movement was resumed. Sentiment was helped by more hopeful views of international affairs. The strong demand for British Funds has been due to the view that a further reduction in the bank rate to 2½ per cent is in prospect and also to suggestions that when the rate goes down to this level the way may be open for a big conversion in respect of 3½ per cent War Loan by an offer to holders to exchange into a dated stock. This would be one of the biggest financial operations ever carried out, but whether it is in prospect, or whether it might be carried out by a number of optional conversion offers, are matters on which there are differing opinions in the City. The exceptional strength of British Funds is the result of the growing view that a cheaper money policy seems to be in prospect, and that should the bank rate go down to 2½ per cent, irredeemable and long-dated British Funds would rise several points above their current levels.

Among foreign rails, the main interest again attached to Dorada Railway stock, which, after advancing afresh to 88½, later reacted to 84. There is no confirmation of recent vague suggestions in the market of take-over developments, though it is realised that should they come in the future, the ordinary stock would have scope for a strong rise in price. It has a break-up value over par on any reasonable estimate of the present day value of the company's assets.

Mexican Central "A" debentures again encountered selling, putting the bearer stock back further to 73½ and the registered to 70½. Elsewhere, Guayaquil & Quito 5 per cent first bonds changed hands at 55½ and Chilian Northern 5 per cent first debentures at 28½, while Paraguay Central prior lien debentures marked 18.

Nitrate Rails shares displayed activity around 20s. 3d. and Taltal shares were dealt in around 13s. In other directions, Costa Rica ordinary stock changed hands at 7½ and the 6 per cent debentures at 61, while Cordoba Central "B" debentures have been showing business around 57½.

Brazil Railway bonds were 8, and San Paulo ordinary units 3s. 6d. United of Havana stocks have been steadier with the second income stock 37½ and the consolidated stock 5¾. Manila preference shares were also steady at 19s. 1½d. and the ordinary shares 9s. 1½d. Antofagasta ordinary and preference stocks were 8½ and 41 respectively, while the 4 per cent debentures marked 42 and the 5 per cent (Bolivia) debentures around 69.

Among Indian stocks a feature has been a sharp fall in Barsi, which showed business down to 103. West of India Portuguese capital stock marked 91½.

Midland of Western Australia was 21 and the second debentures marked 38. Emu Bay 4½ per cent debentures transferred up to 63¼.

Canadian Pacifics were fractionally easier at $48, with the 4 per cent debentures £90¼ and the 4 per cent preference stock £68¼. White Pass no par value shares were lower at $25¼. Algoma Central Hudson's Bay 5 per cent debentures changed hands up to $244.

Firmness was maintained in road transport shares with Ribble Motor changing hands at 37s. 6d., Southdown 31s. 6d., West Riding 31s. 6d. and Lancashire Transport 59s. B.E.T. 5s. "A" deferred units at 58s. 9d. failed to keep best prices, but were again an active feature.

Engineering and kindred shares were active and a number of good gains have been recorded, though all the rise was not held. Ruston & Hornsby at 55s., T. W. Ward 51s. 6d. and Babcock & Wilcox 60s. 9d. all moved in favour of holders. Vickers at 32s. 7½d. were lower again on new issue talk, though it is realised that in any new issue, shareholders would be expected to be given preferential allotment.

The shares of locomotive builders and kindred companies have been more active with Wagon Repairs 5s. shares at 14s. 3d. on the good impression created by the results. Beyer Peacock were 40s., Charles Roberts 5s. shares 10s. 10½d., Hurst Nelson 42s., North British Locomotive 17s. and Birmingham Carriage 27s. 6d. Vulcan Foundry were 27s. 3d. and Gloucester wagon 10s. shares 18s. 9d.